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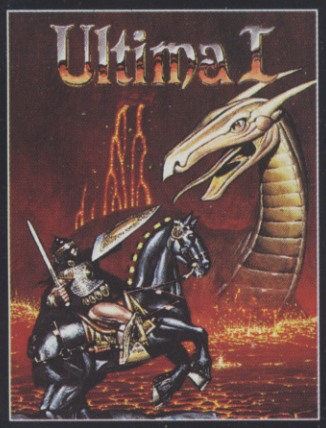

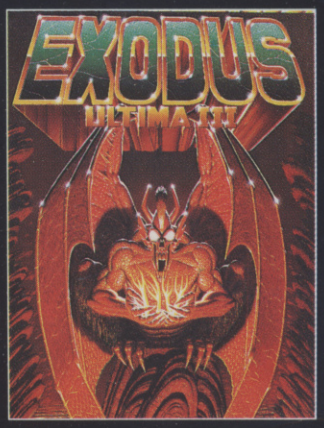

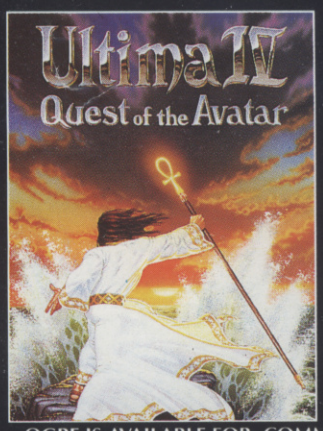

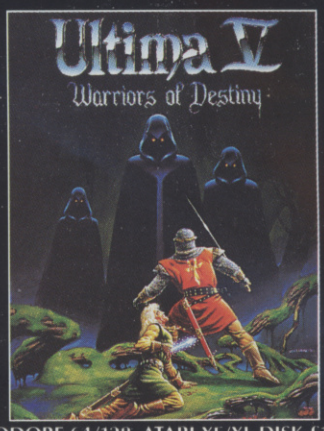

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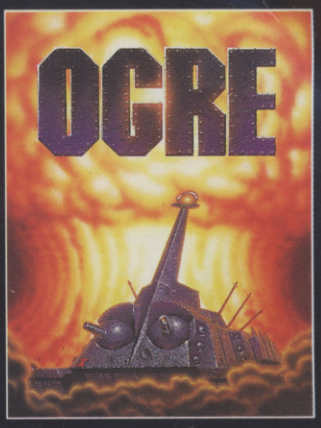

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CCI View

Dear Reader,

Stopped at a red traffic light while driving through a busy street, a cyclist flashed past me. One of the new breed of London messengers – razor-cropped hair, long tight shorts, bag slung over shoulder – he whizzed out among the oncoming cars, avoiding the dangers with contemptuous ease. On his bike, he looked tough and obviously enjoyed proving it to himself and to the world.

My car radio was broadcasting news of English hooligans rampaging through German cities at the European football championships. The cycle messenger looked as if he could have been rampaging among them had he not been challenging the London traffic and earning a living at the same time. Rampage . . . The recent title of a successful coin-op and computer game, full of violence and destruction . . . Not unlike many other electronic entertainments. Yet at the Commodore Show, where many of this kind of game was for sale, where many, if not most of the visitors would also fit in the age group responsible for soccer violence, there was no trouble at all. No chanting – "ACK-TEE-VISH-YON!! GOLD! GOLD! GOLD! YOU-EES-GOLD!" – No organised groups of C16 owners smashing their way to the Anco stand; no drunken looting of the refreshment area and beating up of Commodore's PR Manager . . .

All was peaceable. Crazed looks came from staring at the first public unveiling of Interceptor on the CCI/AUI stand. Agression was confined to the screen and to the mind of the beholder. So before the Governments start taking away passports and allowing the police to take "genetic fingerprints" to help "stamp out hooliganism" – the words themselves, though issuing from official mouths are equally aggressive and sound potentially violent – they might try to learn lessons from events like the Commodore Show.

The people who attend them are not fundementally different from their countrymen. They have, on the whole, been educated through the same system and in the same social environment. Where they do differ is that they have acquired an interest, even an obsession, through which they can express their creativity and, if necessary, their need for aggression too. Blasting away aliens may not be a morally applaudable way of passing time but it is certainly better than kicking an innocent bystanders head. Such computing may however be a very useful way of allowing the competitive and acknowledgedly violent emotions of young men a harmless outlet. For others the computer proves a chance to dominate a technological area of our increasingly complex world, offering a sense of power and personal achievement of a satisfying gain in control over one's environment.

Why are these computer users different from soccer louts if they were exposed to the same educational system and social pressures? Why is anyone different from anyone esle? Genetics . . . minor situational variations . . . and more probably luck . . .

How can soccer hooligans be made to act more like computer users? First you change attitudes, then behaviour. The Government of the U.K. and those of other countries, instead of breathing political fire that soon goes out, might start to think that depriving the educational systems of money, especially that needs to be spent on technology for schools is hardly the way to encourage the useful and creative interest in computing. Most schools in the U.K. are lucky to have one computer per classroom. It is easier for a 16 or 17 year old to save up and persuade Dad to contribute to buying an Amiga for £400 than for a school to afford to purchase one – even at the special discount Commodore offers.

Yet, personal tax cuts for the very rich and "Loadsamoney" attitudes are not considered to have any connection with the lack of investment in public facilities like education, the scarcity of equipment in schools and riots and rampages through city streets . . .

The activities of a computer are interconnected. You cannot run a computer without correct instructions passing through correctly designed electronic paths and circuits. A society works the same way. Design it wrongly, deprive it of the correct environment and key in erroneous programs and the results you get may be a crash in which the whole machine does not just stop working but one in which some, or even a lot of us eventually get unnecessarily but very painfully damaged.

Yours sincerely,
Antony Jacobson,
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New Holiday Travel Terminal

Registrator Industries, in conjunction with Horizon Travel, have developed a special terminal to provide travel agents with the most up-to-date information on holiday availability.

The terminal stores details of up to 5,000 holiday offers, and these are updated continuously using the new technique of data broadcasting. The agent uses a "search" page to find details of holidays matching their customers' needs, and can then book this holiday with a single keystroke.

A second screen can provide advertising information in the window. Similar terminals can be used for many other applications where one information source transmits to many locations. The information is transmitted countrywide in a fraction of a second, and can be received by anyone with satisfactory television reception and a suitable receiver. The "booking" path uses an ordinary telephone line.

Prestel/ TGold Free Micronet Offer

From July 1st a combined Prestel and Telecom Gold tariff will also include free access to Micronet.

To benefit from this special offer subscribers need to join Prestel and Telecom Gold through Micronet. The price for all three services is then identical to that of Prestel and Telecom Gold on their own – £23 a quarter for residential subscribers. Micronet's £30 business tariff also includes a Telecom Gold account. The usual £40 Gold registration fee is waived.

John Tomany, Managing Director of Telemap Group, commented: "It makes sense for computer users who access Prestel and Telecom Gold to use Micronet as well, and at this price they'd be silly not to."

For existing members, Micronet remains a cost-effective method of joining Telecom Gold. Micronet subscribers can open a Telecom Gold account for £1 a month on top of the normal subscription (compared with the standard Gold charge of £5 per month). This allows them to either access Gold directly, or use the Interlink gateway with 100% local call access.

MicroProse Find The Red Baron

After nearly a year of detective work and a touch of good luck on the part of MicroProse's US staff, the fabled arcade machine that prompted Bill Stealey and Sid Meier to start their company now occupies a place of honour at the Hunt Valley, Maryland headquarters.

The story starts back in the summer of 1982, when Meier and Stealey played the Red Baron, a World War I air combat game at MGM's Grand Hotel, Las Vegas. At the time both men worked for a large organisation, though they had met for the first time at the Nevada town. Programming genius Meier said that he could write a better game on his home computer. Never one to turn down a challenge, Stealey added that he could sell it. Their conversation led to the development of Hellcat Ace, the World War II air warfare game that launched MicroProse.

At the turn of last year the company's staff decided to find the machine that spurred what is today one of the world's leading home computer software organisations. Locating this memento, however, would prove a little more difficult than first anticipated.

The first problem was that the Grand Hotel in Las Vegas had changed hands, and new owners Bally had dismantled the video arcade. MicroProse staff initially feared that all the machines had been sold off, never to be seen again. After persisting with the quest for some time after, it came to light that all – including Red Baron – had in fact been placed in storage somewhere in Nevada.

MicroProse higher ups however had contacts at the executive offices of the Bally Corporation. These well placed friends ensured swift negotiations and a purchase of the Red Baron machine, which was soon winging its way to the east coast offices of MicroProse. There it was presented at a company gathering to founders Bill Stealey and Sid Meier. Despite being renowned for its ruthlessly detailed simulations rather than its sentimentality, MicroProse's employees are now happy that the Red Baron, at long last, is where it belongs.

New pips

THE BIG APPLE Entertainment Co.

Big Apple's first game is ready for preview with a host of other original titles hot on its heels. Despite its deceptively friendly name, OOPS! is claimed to be 'as original as it is fiendish, as fresh as it is addictive.' And you're sure to be exclaiming more than its title when you die for the umpteenth time!

In OOPS! you play the part of a droid, scooting round the spacetime continuum collecting vital gravity pods. Misjudge it and you'll be sucked into the Atomic Gravitational Field, a hypnotically scrolling riot of colour and design. Hang around for too long on any of the pathways and one of the two Rimlords will zap you. Dither on your route and the glowing orange Electron Bomb willl introduce you to oblivion! Certain cells along the way are booby trapped, and will crack if you pass over them a second time.

In your favour, you can lay bombs anywhere along your path and detonate them by remote control. And you'll get a bonus screen (with no hazards) after every two grids completed. The positions of the gravity pods are fixed, so a certain amount of mapping and learning is possible – right up to the 32nd screen!

OOPS! is the first release on the Big Apple label and will be available in mid Summer for the Commodore 64 (at £9.95), and Amiga, and PC (at £19.95).

The next bizarre titles to look out for are Delphian, a trading cum shoot-em-up cum survival adventure epic on the C64 and Amiga, and Neutron a fast, smooth, multi-level shoot-em-up set in deepest space, also for C64, Amiga and PC.

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PCs Forge Ahead, Surveys Claim

Market research company Romtec believe IBM's PS/2 machines and the high profile 386 micros failed to impress UK computer buyers during 1987.

According to Romtec's survey of 1987, IBM won 31.8% by value of the sales to this sector. This is more than its four closest rivals – Compaq, Olivetti, Amstrad and Apricot – combined.

Although PS/2 products only accounted for 38% of IBM's total business microcomputer sales, and only 9% of the total market in this sector, full PS/2 availability did not arrive until the end of the survey period. Of those PS/2s that were sold, 51% were taken by the non-MCA Model 30.

According to Romtec's Marek Vaygelt, the survey shows no evidence of any hunger by consumers for the new standards introduced by IBM in April of last year. "The major marketing determinant was availability," he said. "The Model 30 was available for most of the year, and IBM's equivalent DOS products ceased to be on sale, but people were happy to go on buying ATs regardless of the Model 50 and 60 announcements."

Romtec sees a similar coolness to new technology in the reception given to 386 computers, which accounted for a mere 3% of machine units sold during 1987. "Compaq introduced its 386 at the end of 1986, and by the end of 1987 there were 386 machines from IBM, Apricot and Olivetti – none of which were selling in any numbers at all. The whole power computing bit just didn't happen, regardless of the hype."

Vaygelt says, 386 machine sales were disappointing in 1987 because of high prices. "386 machines will start to become important in 1988 as prices fall. Companies like Compaq made mammoth profits out of 386 computers in 1987."

The number of PCs sold in 1987 was 32% up on the previous year, but price-cutting and the launch of low-cost models kept the value growth down to 4%.

Unit growth in the business micro market was powered by Amstrad, whose sales rose from 25,000 units in 1986 to 100,000 in 1987, just topping IBM's – the first time since 1983 that IBM has been pushed into second place for volume sales of PCs.

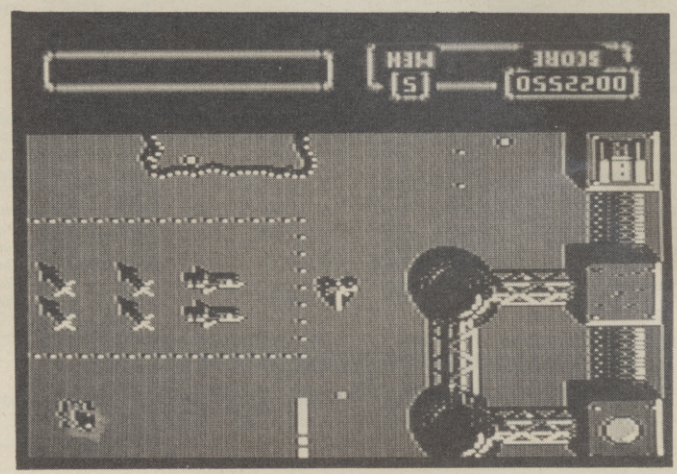
Printers showed strong growth, with 40% unit and 49% value increases – largely due to investment in laser printers. Since software also showed value growth, it's becoming increasingly common, says Romtec, that the CPU no longer accounts for most of a system's cost.

Hewson's Marauder

Battlecar Marauder, a new 8-bit blaster from Hewson crashes on to the streets shortly. Featuring Captain C.T. Cobra in his heavy low slung attack vehicle Marauder and combining all the shoot-em-up action for which Hewson ar renowned.

Airborne drones scream overhead, their bouncing bombs pitching and blasting. Marauder skids and squats, its laser cannon firing. Spinning eyepods and electrohovers spit fire as seeker missiles shudder over the horizon.

Available on Commodore 64 at £9.99 cass and £14.99 disk.



Trilogic's Printlink

Amiga owners who recently upgraded from the Commodore 64 or 128 can still make use of their old computer in programming thanks to 2 new Print Links from Trilogic.

Both the new Trilogic products link the Commodore to an Amiga so that the Commodore can be used as a 64k printer buffer which would normally cost in the region of £200.

The new Print Links are particularly good news for those who still have not upgraded their old Commodorer serial printer. The Print Links connect the 2 computers via their parallel inputs so that the Commodore serial output is still available to run the Commodore printer. As a consequence a program on the Amiga can be printed out on the Commodore printer.

The first Print Link retails for £34.99, £10 cheaper than the more advanced Print Link 1B which has an extra interface so that most parallel printers are also compatible with the system. Both a serial printer and a parallel printer can be connected simultaneously – for example using one for a quick rough draft and one for the final (and usually slower) letter quality printing.

Trilogic's joint Managing Director, Graham Kelly, commented "Thanks to our Print Links, upgrading to the Amiga is now a much cheaper process as the new Amiga owners can now make use of their old equipment."

Love at First Byte!

Melanie Weaver and Jez Thorpe have become the first couple to marry after meeting in a multi-user computer game.

The newlyweds are both avid users of Telemap Group's Shades, where players exist in a fantasy world of castles, wizards and buried treasure. After marrying as characters in the game they got engaged for real just four weeks later and have recently married at a church in Cornwall.

Melanie, who works in the travel business said: "When I started playing Shades the last thing on my mind was that I'd meet my future husband through a computer game. But I soon discovered that one of the best things about Shades is that it allows you to meet ltos of interesting people."

With Shades now available to everyone with a computer and modem, the fantasy route to romance is open to all.

Microbase's PSU

Microbase Products have recently released a new, fully-repairable power supply unit for the Commodore 64 and Vic 20 under the brand name "Micro-Mate".

Attractively styled and coloured to complement the new C64-C the Micro-Mate psu is claimed to be the only unit for the C64 which will cut-off then reset itself should a fault occur. Alternative power supply units, Microbase says, will, at best, blow an internal fuse thus necessitating repair. All Micro-Mate psu's carry a full year's warranty. Price about £29.95.

Contact: Microbase Products, Units 6-9, Plessey Road Workshops, Blyth, Northumberland, NE24 9XX. Tel: 0670 364256.

PC Sales Soar Upwards

The actual sales of PCs in the UK have almost doubled in the first quarter of this year compared with the same period in 1987.

The total for 1988 will be about 540,000 machines, worth £1.3bn, according to Wharton Information Systems, which also carries out market research into office systems in the UK. Sales of software will account for a further £450m. The figures are contained in the British Office Systems Survey published annually by Wharton.

Some of the upsurge of PC sales is attributed to buyers holding back for the release of IBM's new PS/2 machine. But the survey also concludes that the PC is rapidly becoming a standard office tool. Increasingly sophisticated machines are being bought, often working together in networks.

Wharton believes that the UK market will exceed £3bn by 1990.

Hewson's Netherworld

Ace programmer, Charlie T, the Flying Finn brings to the UK the dark mysterious world beyond the Artic Circle. A winter world where darkness rules.

Netherworld, another time another place, created from the deep dark subconscious of the mind where the forces of good and evil are locked in eternal combat. Trapped in the fantasy world the only way back is through battle and bribery. Diamonds are the price. Collect them from the depths of evil, dodging dragons, acid bubbles and fiery fireballs. And beware the monster generators – creators of all the forces of evil.

For this journey, summon your multi-firing Gyro–Sphere to struggle your way from this hideous living hell.

Netherworld from Charlie T, the Flying Finn – Available in August, Commodore 64 and Amiga.

Galway makes it a Sensible 3

Sensible Software are delighted to announce that Martin Galway has joined the company. After three years as a two-man partnership, Chris Yates and Jon Hare invited him to join the illustrious team, and on 1st June Martin put pen to paper and officially became Sensible Software's third member.

Martin, previously famous for his pioneering musical input on games such as "Hypersports", "Miami Vice", "Arkanoid" and "Game Over" with Manchester–based software house Ocean, has already worked on such Sensible hits as "Parallax" and "Wizball", the latter winning him "CCI Music of the Year 1987". He says of the announcement "I'm flattered to be selected by the lads as their only new member since they started".

Sensible Software began in May 1985, their first game being "Sodov the Sorceror", a little known Spectrum conversion sold by Bug-Byte – a long way from their Commodore 64 successes "Parallax" and the classic "Wizball", both marketed by Ocean. Released to international acclaim, "Wizball" scooped a fistful of top awards in 1987 from the British and European presses including CCI's1987 OSMAI.

Later in that year Outlaw Productions' released the utility "Shoot 'Em Up Construction Kit", winning Sensible the prestigious "State Of The Art Award" in a leading national review magazine. Their latest release, Siverbird's "Oh No!", is currently climbing the budget charts.

Now a three-man team, Sensible are planning several future product. The first of these is their near-completed arcade-style football simulation previewed in last month's mags. Originally intended for the European Championships, it has been temporarily "postponed" because Sensible are presently signing it to a major British software publisher, in a deal rumoured to be worth over 197 million pounds (according to them, anyway). Due for release before the end of the year.

Second on the list is "Touchstone", Sensible's largest and most ambitious project to date. Named after Chris & Jon's totally unknown rock band, it will be an arcade-adventure of a size and play depth much greater they claim than any of the current genre. The game will be published by Texas software house Origin Systems, in early 1989.

Sensible's projects also include a venture into the board-games market. "Mastery", a challenging game of "few rules and infinte strategies".

Also on the drawing board are several electronic hardware products for the aspiring Jimi Hendrix, and the perspiring Yuppie business man – but these are SO TOP SECRET, that even Sensible don't know what they are.

About Martin's arrival, Chris says: "It's the worst move Martin ever made!".

Jon disagrees: "No, it's the best move WE ever made!".

8-bit Board Tester

Fluke, the US-based test instrument company, has developed a £1,000 portable desk-top instrument that will put eight-bit microprocessor units through essential tests. Only a few years ago, such a process would have required a rack full of equipment.

The instrument, designated 90 Series, is aimed at micro circuit boards using the popular Z80, 8085 and 6809 devices. It can deal with about 80 per cent of such eight-bit systems in use and is no larger than a desk-top calculator.

The low cost and ease of operation of the tester makes it attractive for use on location, as well as in factories and repair shops.

Outside Fluke's area of operation covering North America, Hong Kong and Japan, the device will be marketed by Philips, the Netherlands-based international electronics group.

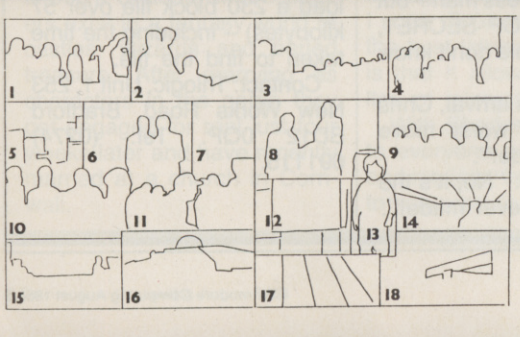
The launch of 90 Series is part of the long-term worldwide arrangement made last October when the two companies agreed to sell, support and service each other's products.

Contact: Philips. Tel: 02235 8866.

Warp Speed Expert

Trilogic have released Rocket, a disk turbo which loads Expert files at 'Warp' speeds and, in conjunction with Trilogic's File Press super compactor, can reach "speeds undreamed of ... until now". Rocket reprocesses Expert files into sequential sector files which enables high transfer speeds to be achieved. In Trilogic tests the new system took just over 10 seconds to load a 230 block file over 57 kilobytes) – including the time taken to find the file.

Contact: Trilogic, Unit 1, 253 New Works Road, Bradford BD12 0QP. Tel: (0274) 691115.



THE COMMODORE SHOW '8

1. *CCI's main entrance Stand*
2. *Selcom's touch sensitive Amiga display*
3. *Precision, the biggest on the Amiga A1000*
4. *From Tottenham Court Road to Hammersmith, Micro Anvika draws the customers*
5. *Digitising, real time plus Polaroid Palette – that's visual Show business*
6. *Olympic Champion Tessa Sanderson presents E.A.'s three 1987 Oskars to Stewart Mathie*
7. *You want the best mags? We sell them! CCIs and AUIs on who*
8. *Stephen Northcott collects the Oskar for programming "Driller"*
9. *Sensible Software take their Programmers of the Year Oskar for Wizball*

W '88 How it was for them?

10. CCI's Diamond Competition winners get the jewels from Robtek's Robert Zysblatt and champagne from Sarah Jones
11. Cavendish's blue-capped stand
12. Pile it high and sell the software cheap . . .
13. Commodore's next generation
14. From 6 to 60, from C16 to Amiga for ANCO
15. "You want it, we've got" say Postronix
16. Packing in around the Arcades
17. CBM – starring in its own Show

Photography: Niki Michaelides

THE COMMODORE SHOW '88..

HOW WAS IT FOR YOU?

Anthony Mael casts an eagle-eyed view over the Novotel Affair. If you went you can compare opinions. If you didn't, here is the good news and the bad . . .

When the crowds used to queue outside the doors of the Commodore Shows in the past, they waited with obvious anticipation for the excitements and surprises they *knew* would be present inside. The early "PET" Shows with their emphasis on serious and business applications gave way to the more general and younger owner with the spread of the VIC20. Then came the domination of the 64 and the era of the hobbyist faded as higher quality, lower-priced computer entertainment software arrived. The age of the visitors fell and the name US Gold was whispered with awe throughout the Novotel.

The 64 owners, many of them first time computer buyers, came to the Show and were treated to a flow of new and radical developments: massive increases in memory, vastly accelerated response times, multiple colours, enlarged sprites, stereo sound. Electronics – home electronics – seemed to present ever more amazing advances each time the Commodore Show opened its doors and the eager crowds poured in and gazed in wonder. This was the Commodore Show – the most exciting event of the computing year . . .

Just two years ago at the Commodore Show, what perhaps could be regarded as the culmination of the "Amazing!" Syndrome, the "Wow!" factor, happened. The Amiga 1000 was launched. Real, absolute, amazing computer magic . . . The 64? Well, the king was dead. So long live the king!

The Amiga leap forward at the Show was in keeping with the Commodore Show's tradition of wonderful novelty. Last year that special buzz was less but again echoed with the public presentation of the Amiga 500 and 2000. The exitting visitors had those two new computer stars in their eyes when they left the Novotel then.

They had also seen the growth of the Amiga range of exhilaratingly colourful and flexible software that is to bring into truthful life the slogan – Only the Amiga Makes it Possible.

"What was there, this 1988, at the Commodore Show at the Novotel that had magic star quality that would leave behind a lasting "Do you remember 1988 when we first saw . . ." impact?"

This year? Was this another milestone in the astonishing history of electronic power to the people? What was there, this 1988, at the Commodore Show at the Novotel that had magic star quality that would leave behind a lasting "Do you remember 1988 when we first saw . . ." impact? The answers are, sadly, "No" and "Nothing".

Because this year is not, at least from what was seen at the Show, going to be recalled as a vintage year and because there was hardly anything that had not already been seen or made available *before*, even quite a long time before, the lines formed outside the hotel. For those who think that the Commodore Show should be an important and influential event for the Commodore community in the UK that "No" and "Nothing" signalled a major disappointment.

There were those, however, for whom the Show was no disappointment at all. Anyone in search of a bargain, something on the cheap, almost certainly found it. Cheap software and hardware, if not of the latest, abounded. If there was one slogan that could have been used to categorise this Commodore Show it was "Cut Price".

Commodore themselves started it, no doubt unintentionally, at their Press Conference on the first morning. (It was perhaps indicative of the low key of the

whole affair that there was no press conference to launch the Show itself.) Some of CBM's top European and UK brass announced a drop in price of the Amiga. It is to come down by £100 to an official £399.00. CBM also previewed the launch of a Summer 64 offer – The Olympic Challenge – which brought the price of the world's biggest selling computer down to £149.00 including a pack of other goodies like a datasette and some suitably athletically-themed software.

However, even CBM's cut in the Amiga price had been widely commented before the Show and the exhibiting dealers were clearly well-prepared. Looking down from the stairs, large numbers of visitors could be seen toting boxes containing 500s, like ants transporting breadcrumbs back to the nest. The 500 push was accelerated by the dealers Stands finessing CBM's price cut of £399.00 with hot cake sales down to £349.00. At that level, it was not surprising that the "New Amiga Buyer Effect" – a spaced-out expression comprising equal portions of stunned wonder and fearful delight, normally reachable only through substances that are sniffed or smoked – was visible on so many faces.

"We've sold out of 500s!" was the frequent comment by Saturday morning, the second day of the Show"

"We've sold out of 500s!" was the frequent comment by Saturday morning, the second day of the Show. Is that any surprise when it is realised that Commodore has now reduced the price of the Amiga to less than a quarter of what it was two years ago – and doubled the memory to 512K?

Price cuts in Hammersmith were not confined to CBM's present big sellers. Software – mainly games – could be bought at almost throwaway levels. Some not-so-new but still playable cassettes were selling for as little as 10p, though the usual reduction was around 50%. Even brand new, top class software such as Micro systems DTP package Excellence! for the Amiga, launched this month in the UK at £199.00, could be bought for £50 less. There were stands, like Robtek's Club 68000, that claimed simply that you could not get products for a better price anywhere in the Show – and they were prepared to back up their claim. Robert Zysblatt, Robtek's boss, took the opportunity to offer apologies for his recently founded Club's initial problems in satisfying all its customers. Apparently the mail order demand coming off the pages of CCI was so great that Club 68000 had to install new systems and staff to cope with the thousands of customers. The penalties of success . . . Other familiar names like Mikro Anvika, Gultronics, Adamsoft, G&B, Evesham Micros, Trilogic, Logic Sales, Meedmore and Postronix also found the selling easy.

They were not only supplying their customers with cheap software but also "shifting boxes" – computers. The old C64 could be bought for a nearly exact appropriate £65, but also monitors and especially, probably the most popular peripheral buy at the Show, printers. For as low as £60, you could pick up a usable 40 column printer. One of the most in demand was the Okimate 20 Colour printer – on special offer for £159 on our own CCI/AUI Stand.

If you had been saving long and hard for your dream machine – the C16, this was *your* Show. You could take it away with you for just £35! Or why not a Plus/4 for only £79? Really big news that!

Very few entertainment software houses felt the need for a presence except in the special games arcade. There some of the latest computer shoot 'em ups were playable. Gary Bracey, Ocean's software kingpin, came specially to set a real live arcade machine with the authentic version of Operation Wolf, soon to be released in computer form by the Manchester-based company, now generally regarded as the top UK entertainment producer.

Another big attraction there was Tessa Sanderson – the British Olympic athlete who is sponsored by CBM this year. With her in attendance, the personable Miss Sanderson was running an arcade high score competition. The 1984 Olympic javelin champion also presented Oskars to 1987 CCI and AUI Winners at our Stand, an event that attracted spectators and autograph hunters both for Tessa and the Oskar winners.

Only Microdeal, presenting their newly-launched Amiga Leathernecks, Mandarin with Time and Magik and the faithful Anco, always a strong supporter of the Show, raised the software houses' flag. (Were the crowds around Anco's stand for the Amiga XR35, the Plus/4 Strip Poker or Anil Gupta's new glamorous marketing princess, Gill Stephens?)

If there could be anything described as "the leading edge" of the Show, it was Commodore's own stand. Rather sombrely decorated in very dark colours and claustrophobically high-walled, it was nevertheless permanently packed. Naturally, the Amiga got top billing but there was also interest in the PCs on view.

For the Amiga fan – who has been sleeping for a year or who does not read CCI or our sister publication Amiga User International – there were some interesting products. Probably the most notable was Dr T's highly acclaimed sampler. Top quality sound is, of course, one of the Amiga's exceptional advantages and this new music package gained many admirers.

Nearby the CBM stand was the largest on the Amiga floor, Precision. The longest established distributor of Amiga products, it also drew the crowds with a big screen demonstration of its very well received Superbase Professional. Other Amiga distributors, HB Marketing, Amiga Centre Scotland and Burocare were also popular gathering points as was Cavendish Computers' stand which was noticeable for its smartly blue-capped staff and the constant flow of Amiga User Group enquirers.

"Cavendish Computers' stand was noticeable for its smartly blue-capped staff"

Ariadne Software was the major developer present and their stand showed an interesting Interactive Audio Visual Presentation and Training Application. Scicom, too, drew attention as usual with their touch screen Amiga technology.

Baudville's Award Maker Plus

Baudville Inc. publisher of productivity, graphics, and entertainment software has announced the release of Award Maker Plus for the Commodore 64.

Award Maker Plus is a new addition to the desktop publishing software family. The user can create professional quality awards, certificates, coupons and more. Graphics are included for Home, Eduction and Business. Intricately designed borders can be printed in colour or black & white.

Contact: Baudville, 5380, 53nd St. SE, Grand Rapids, MI 49508, (616) 698-0888. C64 Award Maker costs $39.95.

Viacom's 'The Twilight Zone'

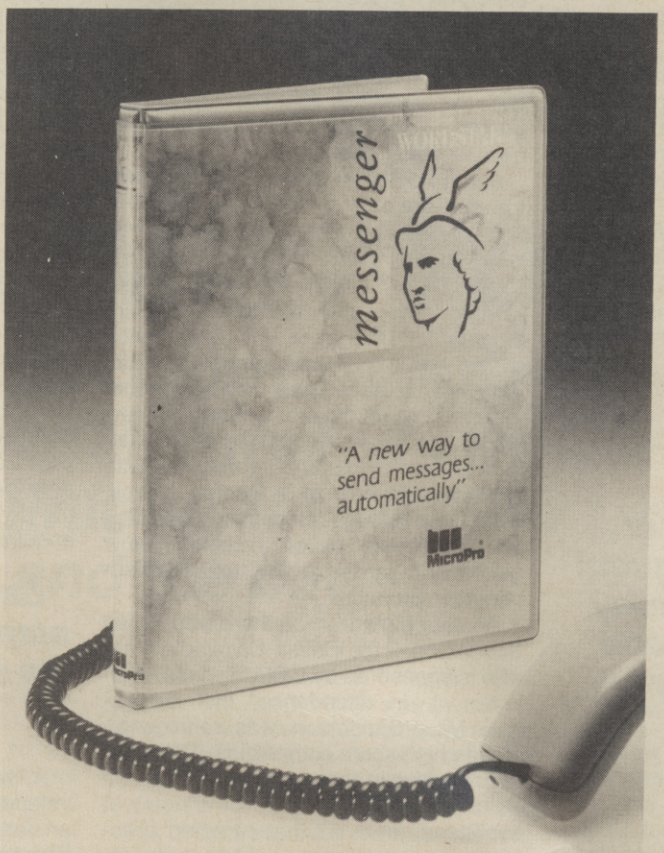
Viacom Enterprises is about to release in the US home computer games based on the popular television series, "The Twilight Zone", and "The Honeymooners".

"Rod Serling's The Twilight Zone", to be released in the US in summer, is an interactive game designed for one player and "Jackie Gleason's The Honeymooners", available in September, can be played by up to four players. In both games players control characters from the TV programmes.

The games have been created by First Row whose previous products include Prime Time which won a prestigious 1988 US Electronic Industry Association (EIA) award for Best Strategic Game. First Row Software Publishing licenses and publishes entertainment home productivity and educational microcomputer software. The company's main development focuses are adventure, simulation and role-playing games.

WordStar Messenger launched

At the recent launch of WordStar Messenger, John Speller, Managing Director of MicroPro International Limited, described the product as "the beginning of a new era in desktop communications".



WordStar Messenger is messaging system which allows users to write and edit messages on screen before sending them. They select (a) the name of the recipient or recipients and (b) the means of transmission, i.e. fax, telex or electronic mail. A single keystroke then dispatches the message without the user having to take any further action. If the recipient is also using WordStar Messenger then the system can transmit fully formatted text. (i.e. boldface, underline etc.).

At the heart of WordStar Messenger, is the text editor from WordStar Professional Release 4. Enabling users to create the documents they intend to send, using all the standard WordStar commands. Attached to that is a communications facility which, when the recipient is identified by the user, extracts the required telex/fax number or electronic mail password from its private directory and automatically dials. It also prepares the message for transmission, so, for example, if it is to be telexed, it will be converted to capital letters and such things as £ signs will be transposed into words.

When the message is sent to another WordStar Messenger user, the software encodes the 8-bit text, including the formatted commands, into 7-bit text so that the electronic mail system can handle it. Once the message has been transmitted, the WordStar Messenger, at the other end, decodes back to 8-bit and all the commands are intact ready to be printed out as fully formatted text.

The receiving user simply presses the "Collect" command and all messages are listed and displayed. WordStar Messenger runs under DOS on any PC and requires a 1200/1200 error correcting modem.

Sending a 1000 character messge to another WordStar Messenger user costs 18 pence. Sending a 5K data file costs 25 pence.

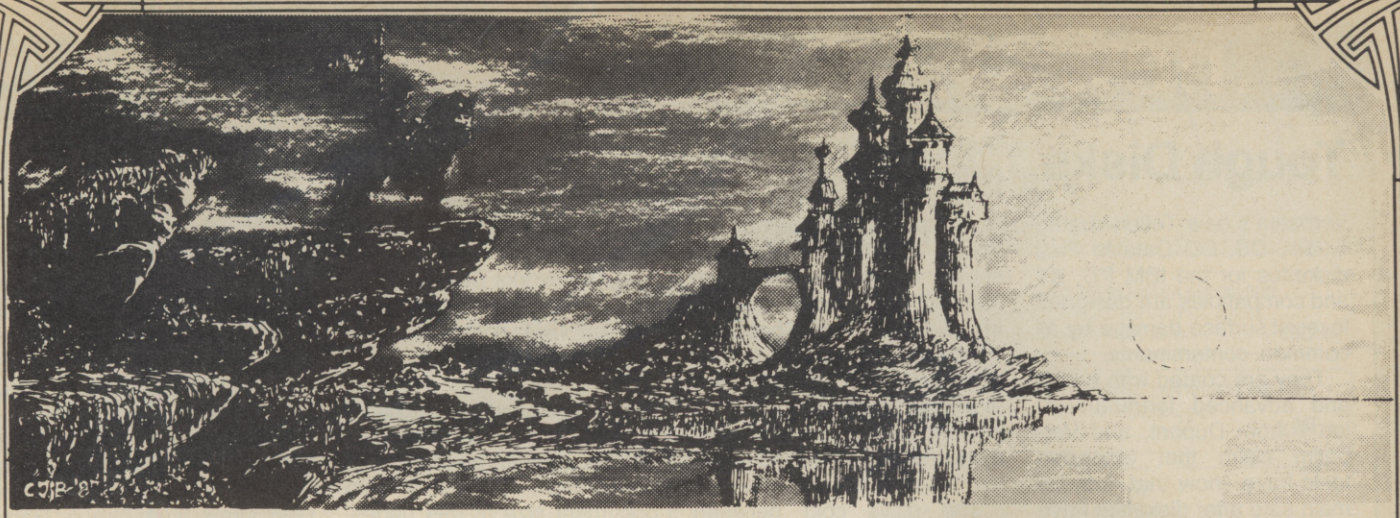
With WordStar Messenger there is a minimum usage charge of £7.50 per month but that covers the cost of the first forty messages so, providing the system is in regular use, there are only minimal extra charges. Bills are normally sent out monthly. Price £230.00

Contact: MicroPro International Limited, Chancery House, St. Nicholas Way, Sutton, Surrey SM1 1EH. Tel: 01 643 8866.

CBM takes the cake

Discovery software – creators of the Amiga Arkenoid at the recent Consumer Electronics Show in the U.S. thought that Commodore's 1988 bright performance deserved a special award. So they gave CBM a big party and a cake to match.

Nick Ross, Discovery's popular boss, caught CBM's non-stop travelling general manager for software, Gail Wellington, between planes and presented her with the gorgeous gateau. Gail thought the cake a bit big to tuck in her suitcase so Nick said he'd send her some of the 18 new games Discovery is planning to launch shortly, including 'Zoom'.



AVALON

THE KNIGHTS OF THE AVALON

The Chronicles of 'THE KNIGHTS OF THE AVALON' is a fantasy-based Play By Mail game from JADE Games, where players seek to establish, through trade, colonisation, politics, religion and conquest, empires.

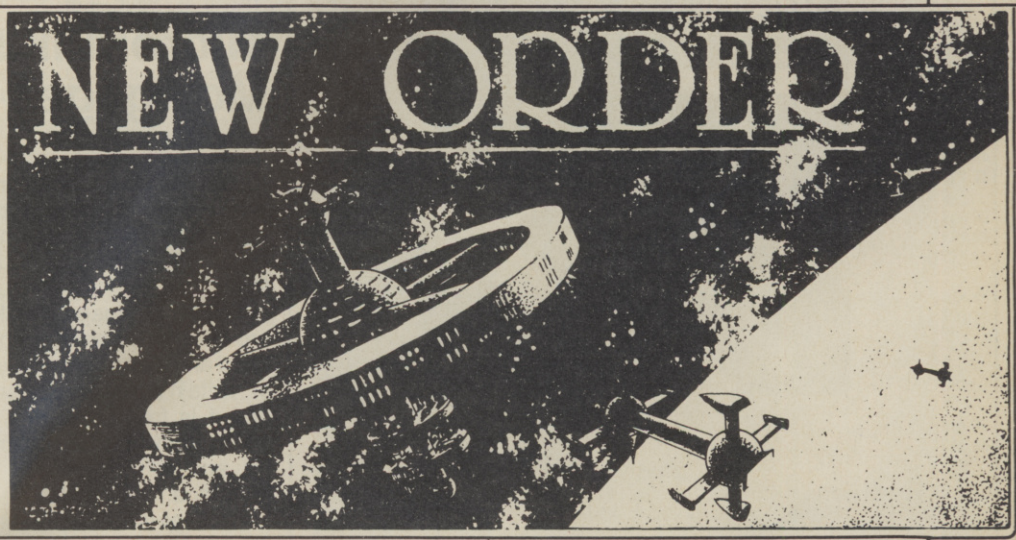
For a free start up write to JADE Games with future turn costs from as little as 80p or ring 0705 828271 for an immediate start up. (International £1.00)

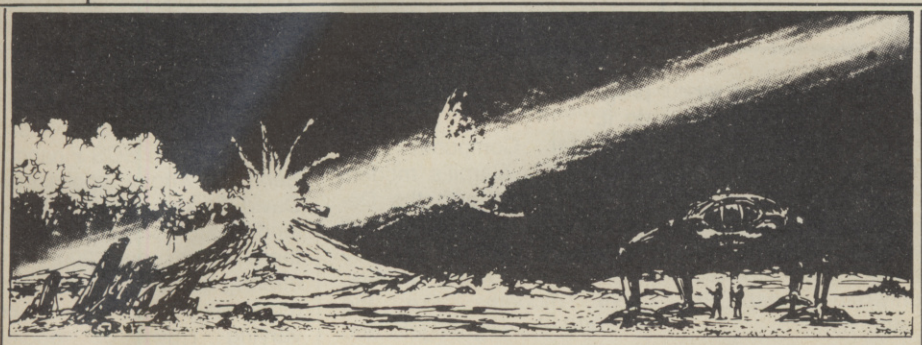
FREE

NEW ORDER

For centuries your civilization has suspected the existence of intelligent life on other planets. Until now you could do no more than speculate about the mysterious radio signals that your scientists have occasionally intercepted. However with the recent development of the hyperjump engine, conditions have become right to reach out and attempt to create a NEW ORDER to link the stars. Will the dominant species in that NEW ORDER be yours, or that of some alien lifeform? In NEW ORDER you get the chance to find out!

NEW ORDER is a detailed game of space exploration, the rule book costs £3.00 (please don't request to play before reading the rules). (International £4.00).





Could you survive on Flindar?

The rogue moon Phosphor has almost destroyed life on the planet's surface – causing world wide earthquakes, flooding and volcanic activity.

SHATTERED WORLD is an excitng PBM GAME OF SURVIVAL. Startup costs £5.00, with further turns £1.50, includes postage both ways.

SHATTERED WORLD

JADE GAMES

JADE GAMES
FREEPOST
SOUTHSEA
HANTS
PO4 0BR

Quote Ref. CCI

ALL NEW ORDER PLAYERS USA PLEASE CONTACT C.2.
SIMULATIONS 16081 SHERLOCK LANE, HUNTINGDON BEACH CA 92649 USA.

...news...news...news...news

Tough Disks

Verbatim's new Teflon-coated 5.25in, DS, DD Datalife Plus diskettes for the IBM PC, XT and compatibles are designed tc resist surface damage by all common contaminants.

They are coated with a new and advanced formula Teflon™ from Dupont, and Verbatim claim that extensive tests have show that data remain safe after diskettes have been contaminated by substances such as coffee, correcting fluid, lipstick and even paint.

"I have watched these tests being carried out, and I could hardly believe just how much abuse these coated diskettes would tolerate. For instance, hardened correcting fluid being scraped off with spatula, followed by washing and drying, and the diskette then shown to be absolutely unharmed" says Action marketing director Dick Sheppard. "They're ideal for the sort of high-pressure office where diskettes simply get taken out and dropped on to the nearest deks, making an inviting target for the next flying coffee."

The disks cost between £11.50 and £13.90 per box of 10.

Contact: Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middx, HA0 1WL. Tel: 0800 333 333; Telex: 922493 Action G.

Timeworks for PCs

The Timeworks Desktop Publisher PC system, designed to run on IBM compatibles, is being released.

For documents layout, Timeworks Desktop Publisher is fully wysiwyg, has style sheets, master pages, multiple columns and a maximum document size of 999 pages. Also included are cursor tracking and frame size location specification – which it is claimed make the package fast and accurate to use when executing layout and design functions.

For text, the system has a variety of fonts, black or white type, search and replace, cut and paste facilities, point sizes, leading, hyphenations, justification and indents.

A large library of Bitstream and Timeworks fonts can be used with the product, and text can be imported from Ascii files, Timeworks Word Writer PC, 1st Word, 1st Word Plus, WordPerfect and Wordstar.

The program handles both metafile and raster graphics and will import design from Gem Draw, Gem Graph, Gem Paint, Lotus 123 and other graphics programs. Included in the package is the new version of Digital Research's Gem 3 desktop.

The package was developed jointly by Timeworks and Cambridge-based GST software, designers of the word processing package 1st Word Plus.

MicroLink's Mortgages

A comprehensive one-stop mortgage and finance service is offered to UK property buyers and borrowers on the MicroLink electronic mail system.

Called Mortgage Desk, it provides an easy route to the rates and plans offered by 150 of Britain's major lenders – and it is free of charge.

Anyone with a microcomputer and a modem can use Mortgage Desk from the comfort of their own home or office. MicroLink connection provides access to the best deals available – many of which can be tailored specifically to individual requirements, whether for buying property or raising finance.

Mortgage Desk also has access to considerable funds for commercial and business purposes, including company refinancing to aid cash flow.

It can arrange conveyancing on a fixed fee basis, plus personal visits to the borrower's home or office to help with completion formalities and documentation.

Users simply fill in a form on their computer screen and Mortgage Desk comes up with the most suitable fit in terms of the requirements of both applicant and lender.

Mortgage Desk is operated by Southampton-based brokerage firm BCS Financial Services whose spokesman David Taylor said: "Mortgage lenders are not all the same – there are well over 200, most offering a number of different mortgage packages based on varying types of lending criteria.

"You could spend a considerable amount of valuable time traipsing around all the local building societies, banks and financial houses without obtaining the most suitable mortgage you need to purchase your new house."

Compunet widens Modem Access

Until recently, only expensive Hayes-compatible modems could be used for Compunet with an Amiga.

Very frustrating for those wanting to come on-line, but facing a three-figure outlay for the right sort of modem.

. Among these frustrated people was well-known Commodore programmer Eddy Caroll, author of Edterm (described as the best ever terminal program for the 64) and numerous PD utilities. Already on Compunet with his 64, Eddy (ALLANON to netters) was determined to use the net with his Amiga as well – and he was not going to let the fact that he only had a cheap OEL modem stop him.

It took a couple of weeks ... and numerous mailbox consultations with Dave Parkinson of Ariadne Software, creators of the Compunet terminal software. But at last Eddy Caroll logged onto Compunet with his Amiga an OEL modem – and uploaded the program which enabled him to do it.

So far, Compunet have tested Eddy Caroll's modem driver software with the Demon and Prism 2000 as well as the OEL, and it has passed all tests with flying colours. Other modems like the WS2000, the Nightingale and the Tandata are presently being tested.

So if you have an Amiga, you don't have to wait till you can afford a Hayes-compatible modem. If it will pick up a phone signal, it will almost certainly pick up Compunet.

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SCREEN F/X

Solutions Unlimited Inc

Do you gape at the special video effects you see on TV? Nigel Streeter stares in amazement at a new package on his 64 which lets him do nearly as well.

Hot on the heels of "Photo Finish" (see CCI June '88) comes another software package from Solutions Unlimited Inc. of America: "Screen F/X".

"Screen F/X" (the F/X is short for EFFECTS) is possibly the finest graphics manipulation/presentation package available for the C64 today! (In my opinion!!) Yes, I know that sounds a big claim, but if you try Screen F/X you will see what I mean.

Anyone who has watched any television recently may have noticed, particularly on music shows, the various effects the producer will use to change from one picture to another. These involve fades, dissolves, wipes, boxes, etc., etc., which is exactly what "Screen F/X" will help you achieve.

For example: you could display a picture, then slowly fade a second picture into a small 3D box area, with a pattern moving around the outside of the box and text scrolling across the main picture. Then dissolve to a third picture without changing anything else. And that's in just the first ten seconds!

Most of the basic effects seen on TV are available to you, but to describe all of them to you here would take far more space than this article allows. So I will just mention two of my favourites.

The "Snake" effect spirals either inwards from the edge, or outwards from the centre of the picture, leaving either another picture or a selected pattern in its trail, until the picture is completely changed.

My particular favourite is the "Blind" effect, and is just as it sounds. A "Venetian blind" which either opens to reveal a picture 'behind' it, or closes to reveal a

picture 'on' it. As with all the effects, they may be used on the whole screen or on a smaller, user-defined area only.

It may all sound very complicated, but Solutions Unlimited have come up with a very simple, multiple-choice menu system from which to make your selections. Each individually selected 'event' goes to make up a 'script' of 'events' which is displayed on screen and may be edited at any position. 'Scripts' may be loaded and saved as required.

"Each individually selected 'event' goes to make up a 'script' of 'events' which is displayed on screen and may be edited at any position"

So far, all the effects mentioned have been "VISUAL EFFECTS", effects that you can see working. There are also "TRANSPARENT" and "PROGRAM" effects.

"Transparent" effects include loading pictures, flipping, inverting and reversing pictures, setting background and shadow designs and colours and choosing patterns for display.

"Program" effects allow you to use a simple programming language to achieve loops, gotos and gosubs, and link files. The last being the ability to link a number of scripts consecutively, enabling you to set up a library of 'standard' routines that may be 'linked' together.

"Screen F/X" is divided into three major parts. Everything mentioned so far has been part of the "F/X EDITOR", the others being "F/X PROCESSOR" and "F/X EXECUTOR/SET UP".

"The "F/X Processor" is almost a complete graphics package in its own right"

The "F/X Processor" is almost a complete graphics package in its own right, allowing you to manipulate text/fonts and graphics to create display screens for use with editor.

The "F/X Executor" is a stand-alone file that will run (read) an "Editor" script, so you may see your shows without first loading the Editor. This particular program is not protected or copyrighted and may be given to others so that they can see your hard work. (Will Xmas cards ever be the same again?)

The "Setup" part will initialise a work or executor disk, copy files and scripts and, finally, something for all of you programmers out there . . . it will set up an AUTORUN DISK that will load and run a show, then load and auto-run another program in Basic or ML. (Imagine a game, for example, with a preview/slideshow of some of the highlights before the game starts!)

As with all of Solutions Unlimited products, the packaging and presentation are more than adequate and the 58-page manual is (mostly) clear and concise, with a simple "walk-through" example to give you a good 'feel' of the programme.

Without question Screen F/X is an outstanding program that no-one who is interested in graphics on the 64 should be without. The only pity is that it has arrived so late in the career of the 64 However, there are millions of 64s (anc 128s) still being used around the worlc and a substantial number wil give Screer F/X an enthusiastic welcome.

N.S

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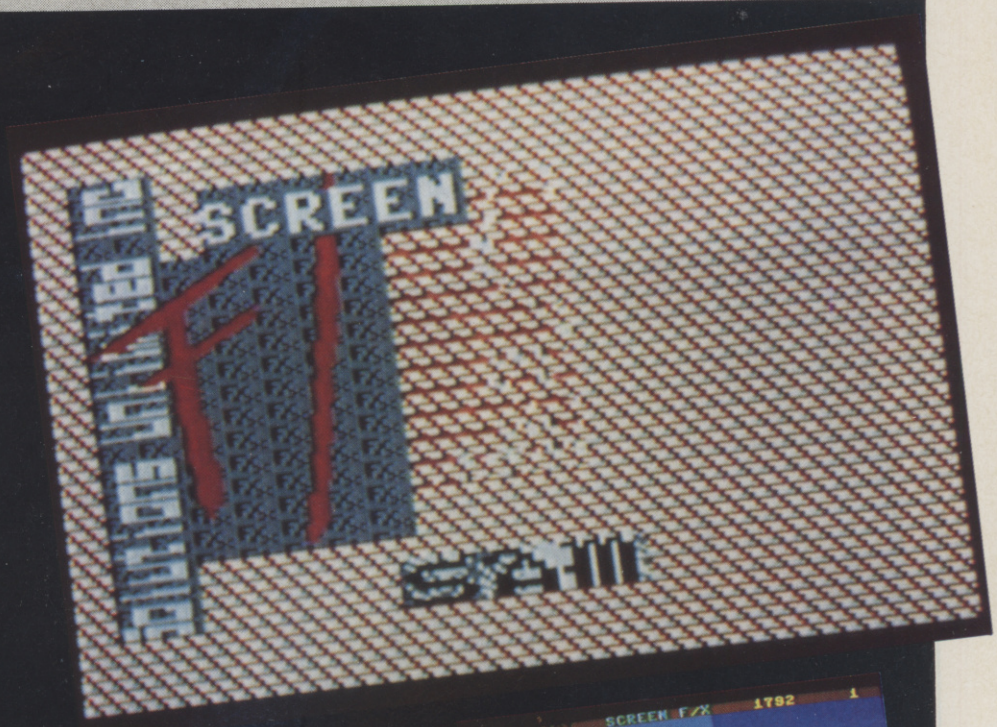

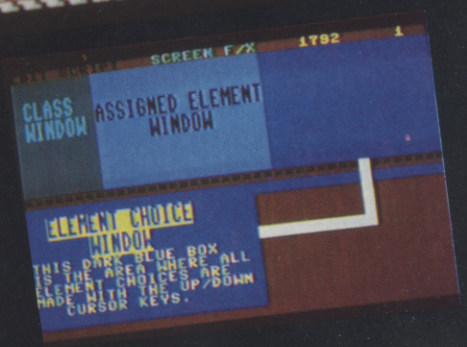

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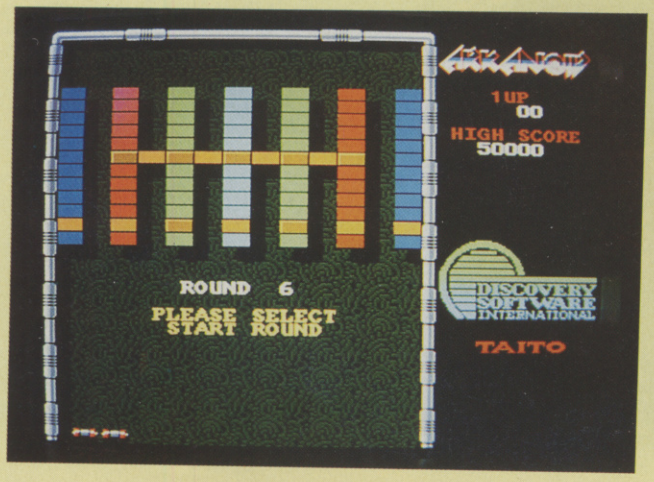

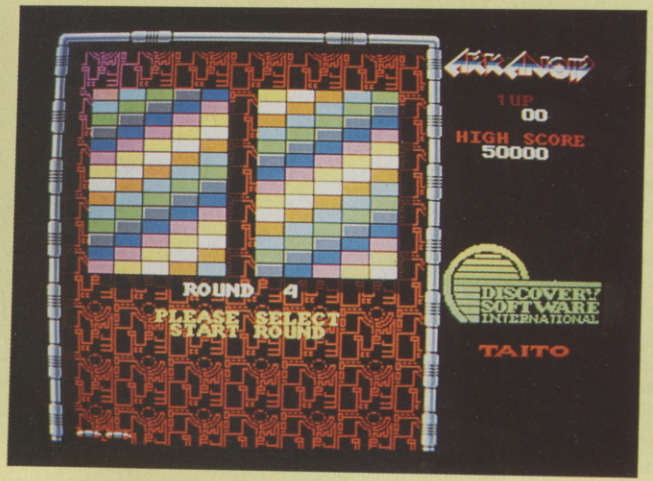

The arcade blockbuster *at last* on the Amiga. The most sensational conversion from the worldwide smash-hit coin-op game for the Amiga – Arkanoid.

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Through Amiga User International Magazine you can play the enhanced European version of Discovery Software's terrific new game about which our review says

"Apart from the Discovery logo and option to start on any of the first 20 levels, it may as well be straight out of the coin-op!"

As a special introductory offer from Amiga User International Magazine you can get Arkanoid for £19.95 – £5 off the recommended retail price – an amazing bargain! As our review says (again!) *"If you want a game that will become an Amiga classic, go and buy this, you won't be disappointed."*

Self Guiding Truck

Self-guided vehicles are the latest idea in automatic guided vehicles that follow invisible pathways. US company Caterpillar, famous for forklift trucks, has models that don't even need a path; they store a detailed map of a building in their computer memory. Sensors keep track of the machine's movements, and a laser scanner on top of the vehicle searches for bar-code location labels posted throughout the building. Using triangulation, the carrier needs to find only two labels to pinpoint its location. A typical two-vehicle setup can be leased for about $6,000 a month.

Caterpillar expects overall sales of automatic guided vehicles to reach $1bn annually in the US within five years. "If self-guided vehicles replace forklift trucks, the potential is bigger," says Dave Butler, merchandising manager for the vehicles. Not surprisingly, Caterpillar plans to add a self-guided forklift to its flat-topped and towing carts.

1000 Line TV

Toshiba of Japan, in readiness for the new era of high definition television (HDTV) that is perhaps only a decade or two away, has developed an image sensor for the improved cameras that will be needed. HDTV systems will operate at more than 1,000 lines instead of the present 625, so cameras with higher resolutions will be called for.

The new Toshiba sensor is of the CCD (charge coupled device) variety and produces 2m pixels (picture elements). By comparison, some 0.3m pixels are produced by the sensors presently used in home video cameras.

The design problem with such devices is that, as the pixel count increases, the pixel size has to reduce unless the sensor is to get bigger. But the smaller the area of the pixel, the less light it can pick up, so that sensitivity is lost.

Using new CCD technology, the company has managed to increase the sensitivity by four or five times while integrating 2m pixels on a chip measuring only 16.2mm × 10.5mm.

Sony's Optical Disk

Sony claims it will be first in the race for erasable optical disk technology and its 5.25″ disks and drives will be available to manufacturers shortly.

With optical technology, a laser erases existing data with a one-micron beam. New data is recorded on the disk by a magnetic field which alternates its direction.

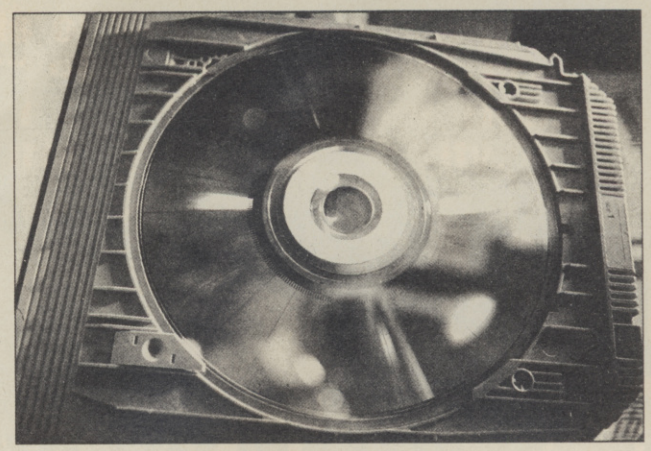
According to Sony chairman Masaaki Morita, the 650MB optical disks can be erased and written on more than one million times.

The disks come encased in plastic cartridges similar to those now used on 3.5″ disks. Sony claims errors are down to less than one per trillion bytes.

The optical disk technology offers users data transfer at 680KB a second.

The disk drive, which includes a small computer systems interface card in its controller, will be sold initially to computer suppliers for £4,000. The disks will cost more than £100 each. But Sony said prices would come down once laser volume shipments begin next year.

The company is claiming burst data-transfer rates of 1.2MB per second. Burst transfer sends data all at once over a line, at a time that suits the system rather than the user.



Sony's new optical drive.

Inkjet Prints on Boxes

Characters more than 50mm (2″) tall can be printed on packing cases and boxes using a compact inkjet printer from Keith Wood and Co. The unit is arranged beside a conveyor belt so that as the boxes pass, the characters are printed.

Inkjet printing uses tiny, charged droplets of ink which are computer-directed via an electric field to strike the surface at precise points to form characters.

The Keith Wood device is programmed using a hand-held keyboard unit with a small display.
Contact: 0264 781989

Optical Storage Paper

A new form of optical data storage has been developed by ICI Electronics. Known as ICI Digital Paper, the medium is described as flexible, robust and inexpensive to make. The company says that recordings made on the medium are indelible.

ICI Digital Paper consists of a polyester based substrate on to which a dye polymer optical recording medium is coated. The basic characteristics are said to be similar to those used in rigid optical storage media, but the ability to coat a flexible substrate is new.

In fact, the ability to create flexible disks and tapes opens great possibilities in storage. ICI says a 2400ft reel of ½″ tape – having the same proportions as a 10½″ reel of magnetic tape – would be capable of storing 600Gbyte of data. The company adds that it is only the resolution of currently available writing devices which prevents even higher data storage volumes.

Several drive manufacturers are working with ICI on implementations of the technique. One is Creo, a Canadian company, which is working on a high capacity tape drive. Another is Iomega, which has set up a subsidiary – Bernoulli Optical Systems – to develop a flexible optical disk drive.

Creo's drive is designed to offer a capacity of 1000Gbyte. It is said to have an average access time of 28msec to any byte on the tape and to fit a 12″ open reel format.

Sadler's Wells Computerised Box Office

Sadler's Wells Theatre claims it is now using one of the most advanced box office ticketing systems in the country following a donation of computer equipment from DEC, the company's principal sponsor.

The system chooses the best tickets available for a given performance, it files addresses and credit card details on the screen and then prints both tickets and credit card slips ready for mailing.

The system is very handy if you lose your tickets, as long as you've paid by plastic or by cheque. Just supply the card or cheque number and the computer will then search through every performance until it finds a match. It then prints duplicate tickets.

Sadler's Wells hopes to upgrade the system so anyone with access to the facilities of Prestel will be able to dial in and book their tickets.

PIRATES AGAIN!

(WIN THAT WEEK IN BARBADOS!)

WE RECEIVED THIS LETTER!

Dear CCI,
I have recently started to buy your mag (since May '88 in fact) and will continue doing so for as long as I own a Commodore computer. Your mag is brilliant, and I think every 'Commodore User' (sorry about that) should have one. The actual mag is perfect 'cause none of the pages fall out and the cover won't come off (unless you rip it off that is).

In your June '88 issue I spotted a column headed "UK GAMER WINS CMOH". I have had a CMOH for months now, and I thought everyone had one. I also have 13 AM, an SS, 2BSV, 5 ACM, all campaign ribbons, DSC, PHZ, several DNS and over 100,000 pts. I am also a colonel. May I join the elite too?

About your Pirates! compo. When you say highest score, do you mean:
(a) Highest amount of gold pieces you and your crew have possessed at any time? (Mine was 680,370 pcs with 1500 crew.)
(b) Your highest personal wealth and status? (I'm an English Duke (married) (found my sister and Inca riches searching for pops now) with 78,270 pcs in personal wealth. Also Dutch Admiral.)
or (c) Highest retirement score?

Also one of the questions in June '88 (Q4) is a strange one, cause it depends on which nationality and era you are in, and therefore there is no one correct answer.

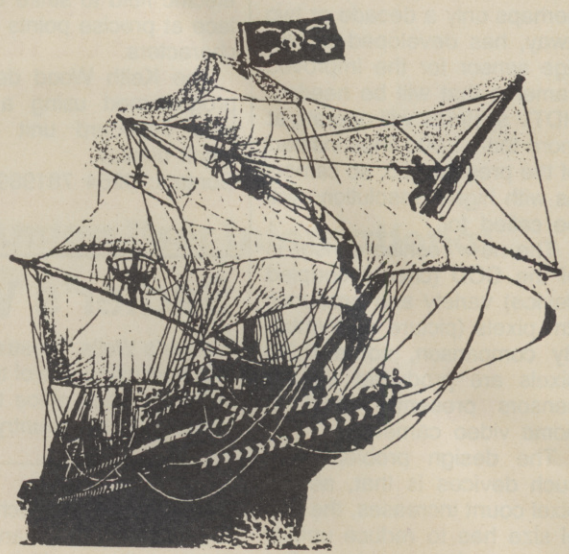
I was going to enter your Pirates! compo in the May '88 issue, but have only a cheap disk camera to take photos with, and cannot get a clear enough snap of the TV and I don't own a printer either. If I sent in my game save tape, would that do? If I included the return postage, could you also send it back?

I have also made some spectacular achievements in Pirates! such as:
A saving in which you start in a town by the name of "Florida Channel".
An entirely English "Spanish Main" (apart from a few Dutch colonies I set up myself) in the Silver Empire 1560-1600.
I also came across an enemy "Spanish Galleon (DMGD)". I moved in for the kill only to find it doing a speed of 327 into the eye of the wind, 500 Running and 400 on a beam reach. I managed to capture the galleon, plundered 700,000 in gold and 255 tons of food, goods and sugar. But! when I took the cargo and pressed fire the game crashed!

I'll just finish up now by saying you run an excellent mag here, keep up the good work. And could you please print my letter and answer my questions? Please?
Dib from Belfast
P.S. I can confirm my scores on both Pirates! and Gunship if you wish.

You must send your highest score in Pirates as a photograph or print-out. And write, in not more than twenty words, why you find Pirates fun.
The top five scores each month will get a Microprose sweatshirt and a free year's subscription to CCI. The top two scores of each month - ten in total - will be invited to the Personal Computer Show in September at Earl's Court to a Pirates play-off at which the winner will be the one with the highest score and who will, of course, win the glorious piratical Barbadian week and the treasure cash!
You can enter once each month and re-enter with improved ratings if you wish (don't forget the game can be saved to disk).

Dear Dib,
We mean highest scores just like yours. Send us your proof and address and you'll almost certainly be among the winners – and have a chance for the Barbados prize too!
Now all you Pirates out there, we're still waiting for high scores. Can you beat 100,000 gold pieces and the rank of Captain? You can? Well send it in to us. Quick!



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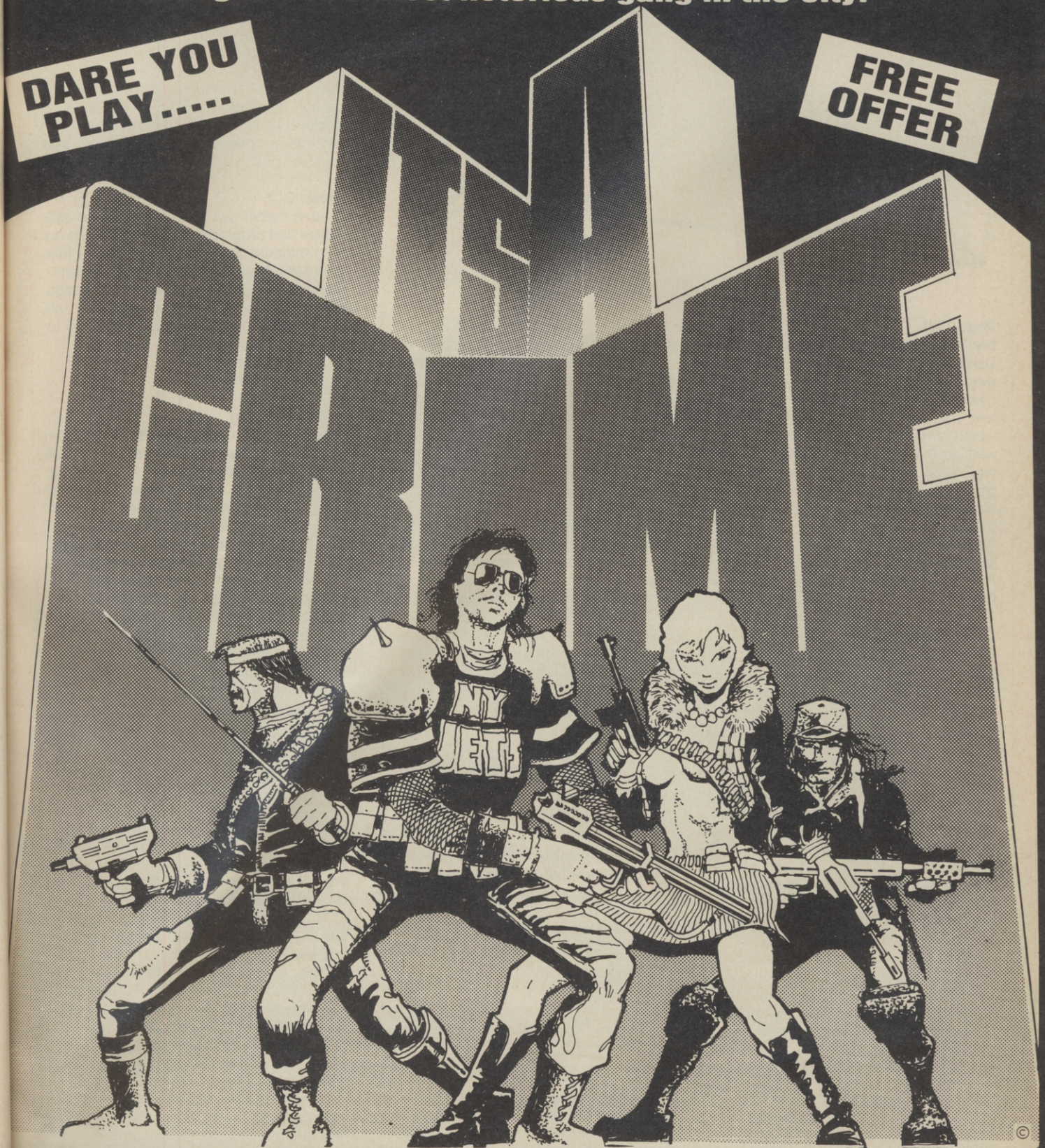

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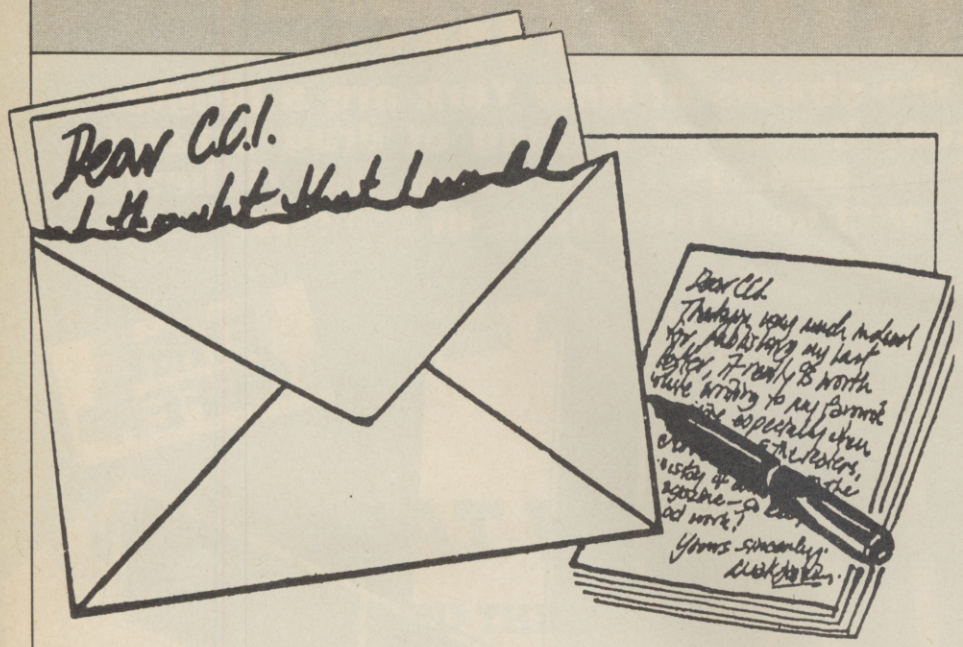


Dear CCI
My friend the other day went to World London Games, and came back telling me that Innerspace was out for my computer, the Commodore Plus/4. He told me that the graphics were 100% which is what it said on the packaging as well as the sound and playability which were also 100%. Is this true? And if so could you put me and other Plus/4 users out of their misery by having a review of it please.
Yours sincerely
Mathew Leslie, Harwich
P.S. My friend told me the game cost £67.00!

Dear Mathew
What makes us think you have been taken for a ride? None of us at CCI have heard of a game called Innerspace for any computer. That is not to say it does not exist, and it may well have excellent graphics, sound and playability. As for the £67 price tag, I would take that with more than a pinch of salt! It sounds to us as if your friend is having a bit of a wheeze at your expense. Can anyone help?

Dear CCI
I have just bought a C16/+4 and was looking for a good game to buy, my friend recommended your magazine and I have been reading it for five months now. While at my friend's house I was flicking through a copy of CCI from way back in August 86 and I spotted a "Megareview" on Mercenary after just buying the game myself. I was quite worried when I found at the bottom of the page a mention of a map and I gathered by reading the page it was included in Mercenary 1 and wasn't with my copy. Please . . . please . . . please could you print it in a copy of CCI or send me a map.
Yours faithfully
Patrick O'Malley, Oxford

Dear Patrick
Novagen tell us that their Targ survival kit is still available from them at £3.95. It includes some excellent maps of the city and its complexes that should help you out no end.

Dear CCI
I have owned a Commodore 64 for two years and programmed simple games on it in machine code and basic. Now I feel that I would like to have a go at programming a professional game on an Amiga and try to sell it. Could you possibly tell me about books or contacts I could get to help me achieve this?
Yours sincerely
T Reeve, Ely

Dear T Reeve
Really to get to grips with the Amiga, the official hardware manuals are essential reading but be prepared to shell out around £35 a time. Amiga Assembly Language Programming is another good one to look out for. Once you have got a few demos of your work together, why not send them off to some established software houses rather than going it alone. There is always a big demand for creative programmers – and lots of cash for those who can produce the goods. So keep at it. If at first you don't succeed . . . (No, don't *go away and try something else! Keep on programming!)*

Dear CCI
Re: Border Sprites/Your letter Nov 13 etc etc
Hello there. I believe our correspondence relating to this found its way into a recent issue of CCI.
It is a pity that, in this case, I was wrong. Your published program was correct and I unequivocally apologise!
What brought about my outburst was not so much Border Sprites but the half-dozen or so programs before that (from other magazines) which WERE crook. It was the straw that broke the camel's back to see a small 10 liner not working.
However I'm still convinced that no program should be published without some kind of error-checking. The best example I've seen so far is COMPUTE!'s GAZETTE's Prootreader and MLX.
Border Sprites was an interesting concept but would have been brilliant if accompanied by a good descriptive article.
However, you won the bet and enclosed is your highly-prized NZ$10 note!!
While writing I'm enclosing a program submission. I don't know your requirements so at this stage perhaps you'd just look at the program and see if you'd like to use it.

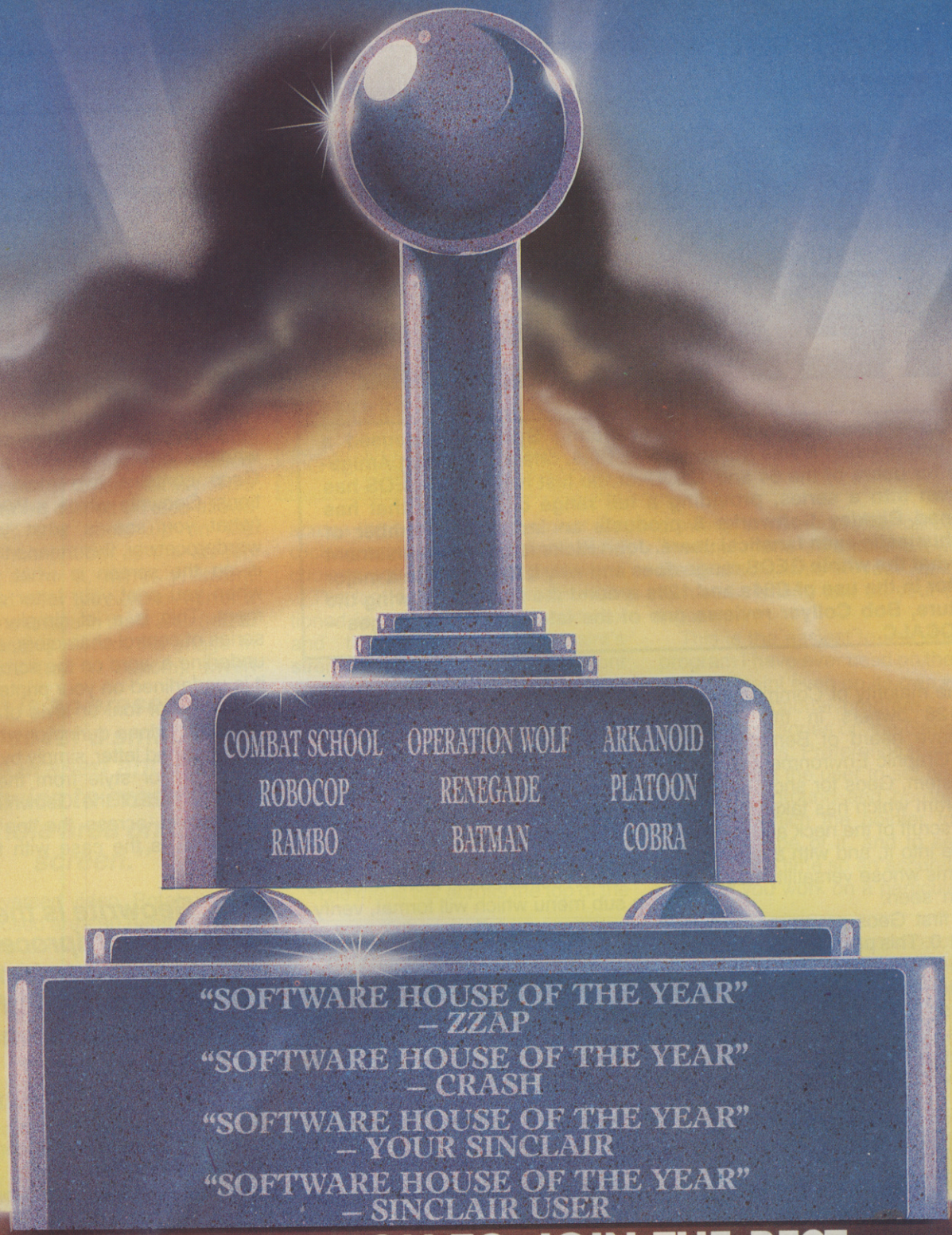
It is for the C16/Plus4 only. There may be some hassle with the name LUDO?? Anyhow the doc file gives all the gen.
Yours sincerely
Kirk McMillan

Dear Kirk
We're keeping your 10 NZ dollars and mounting it on the wall as a trophy! We do check all programs submitted before publishing – we're checking yours right now and hope to publish it in a future issue. Ludo? Whoever heard of a game called that before. It just means 'I play' in Latin, doesn't it?

Dear CCI
I would simply like to know if Datel Electronics would send their products (if I paid by postal order in English currency) out to me here in Aussie land. If so, how much extra dough would I need to include for p&p if I wished to purchase the "Robotarm" and interface (advertised in CCI April '88 page 106).
"Why don't you write to them you stupid idiot?" I hear you ask. Well I have, and received no reply. I think our local mail system has failed me once again.
Thank your kindly for your help and attention. Keep up the good work.
Yours sincerely
Tim Carnell

Dear Tim
Datel tell us they would certainly send you products if you pay in sterling.

G'DAY, MAIL FROM DOWN-UNDER!



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Software Development
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Manchester M2 5NS

Feature

GEOS REASSESSED

GEOS – Graphic Environment Operating Systems – caused a sensation when it was introduced in 1986, offering exciting Amiga-like for users of the 64 and 128. Over the last two years, GEOS has grown into a series, providing a full range of facilities that has gained Berkley Softworks 8 products an increasing number of enthusiastic even fanatical users. John Hicks takes a reassessment of what the whole GEOS range does and why it has become a major factor in the use of C64s and 128s around the world. Following the feature, Bob Collyer reviews one of the latest GEOS packages – GEOCALC.

The majority of Commodore 64/128 owners in this country have heard of Berkeley Softworks Graphic Environment Operating System, Geos for short. Geos is a program which has taken the C64 by the scruff of the neck and injected new life into it, and with a system of programs whose versatility has rarely been seen.

The first Geos program was version V1.0. This program, though, had Geopaint drawing monochrome, whereas the version released in the UK was V1.2.

Geos V1.2 gives the C64 and C128 user the Amiga style workbench with its ease of use. Having booted up the disk you are presented with a desktop system and a menu bar at the top of the screen. This menu bar is activated by the moving of a pointer and any of these menus can be activated by pressing the button of your joystick which is plugged into port one of the computer.

When activated the menu releases a sub menu which will format, verify, copy, open and close a disk as well as add an additional disk drive, open a range of Geos accessories, open file accessories as well as a sub menu to give date, type and time a program or file was opened.

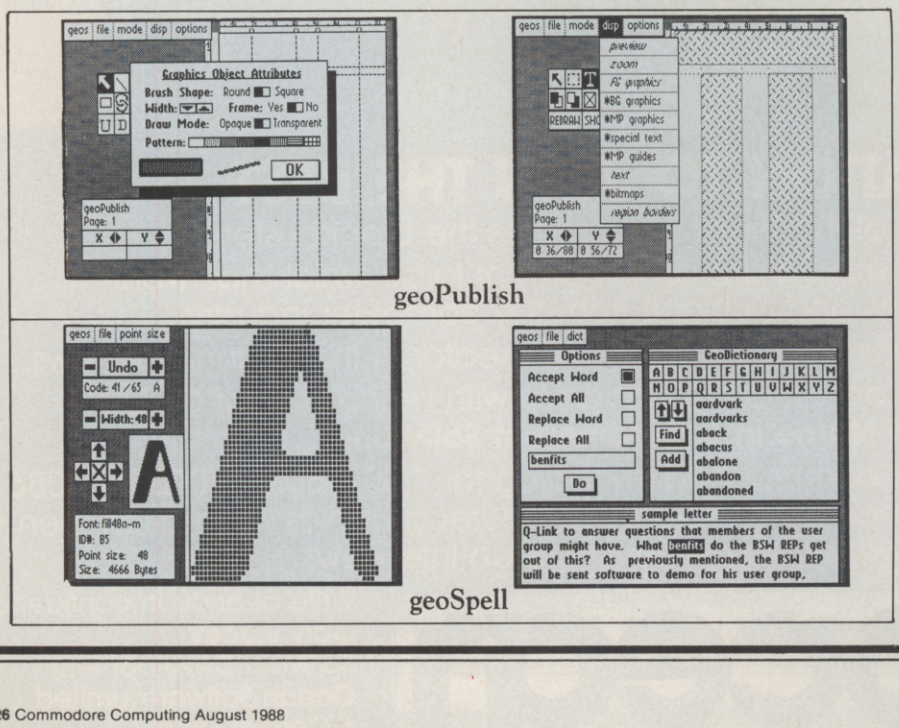
Taking a close look at the desktop on the right hand side in the border there is your disk drive status, ie whether one or two are available. Geos contains two main applications, Geowrite which a WYSIWYG (what you see is what you get) wordprocessor, this means that what is on the screen is what you get when you print your letter or document. This is a lot simpler than a series of control characters, so if you underline a word on the screen then it is underlined on your printed copy. A change of font or style of print is also easily done during or when you have finished letter, simply by choosing a font or style from the menu which is part of the Geowrite program and is across the top of the screen as is the case with the desktop.

"Geowrite is the simplest wordprocessor I have ever used and it has features in it that only some of the most expensive of wordprocessors have."

The menus in Geowrite consist of Geos accessories, a file menu whose sub-menu contains close, update, review, print and quit the document, an edit menu whose sub-menu contains cut, copy, paste of text and graphics from Geopaint.

An options menu with a sub-menu able to move from one page to another and a page break as well. Also the previously mentioned Font and style menus with their individual sub-menus.

Moving down one eighth of the screen, there is a ruler on which you can set left and right margins which resemble the letter M, click on and drag to the required position, click again and for the right hand margin, what could be simpler. There are eight tab stops available and once



geoPublish

geoSpell

again it is simply a matter of clicking on with the fire button on the joystick and setting the tabs where you want them, clicking to release them.

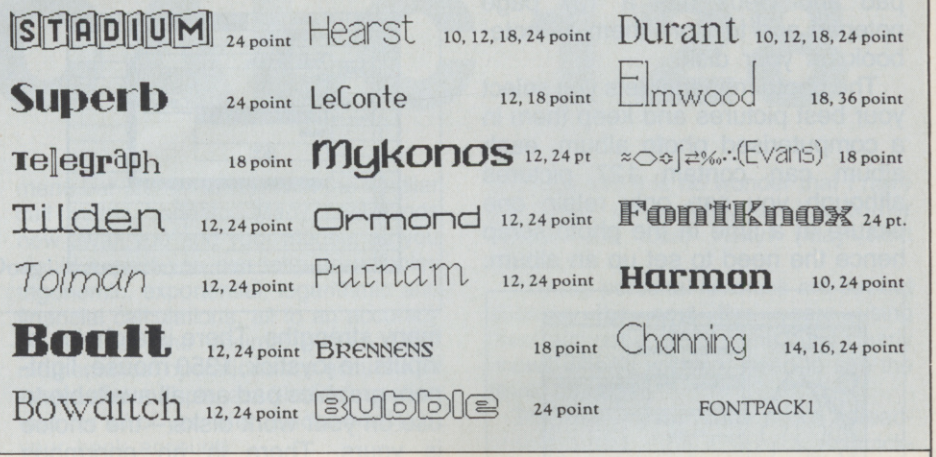
Geowrite is the simplest word-processor I have ever used and it has features in it that only some of the most expensive of word-processors have.

The second application is Geopaint which is a sixteen colour graphics program with a drawing tool kit consisting of a scroll box for scrolling the screen, there is an edit box for marking the sections needed for cut, paste and copy facility. This edit box when clicked on also allows commands that come up on the menu at the bottom of the screen such as mirror x, mirror y, invert, rotate and clear the screen. Mirror x mirrors the image in the x axis (left to right). Mirror y mirrors the image in the y axis (top to bottom). Invert

"there is an eraser. Click on once for a small area to be erased and click on twice to erase the whole area on the screen."

gives reversed video. Rotate rotates the enclosed area 90 degrees. Clear clears the screen. Also in the toolkit is a line draw box for straight lines, there is a freehand drawing facility marked with a pencil, a rectangle box, a filled rectangle box, a circle box and a filled circle box. Both the filled boxes when clicked on fill with the current pattern. The tool kit also has a pattern fill box with the picture of a tap, an airbrush which works like a spray can, a ruler so you can dimension your drawings, the box marked with a brush allows you to choose one of thirty two brushes.

To change a brush shape move the pointer and press the fire button on the options menu on the top of the screen menu bar. Also in this drawing tool kit there is an eraser. Click on once for a small area to be erased and click on twice to erase the whole area on the screen. The box marked "color" allows a choice of sixteen colours for either drawing or background, there is an "undo" box which deletes the last instruction, ie if you draw a line that is not needed, there is a pattern box which displays the current pattern and by clicking it on displays a thirty two pattern menu



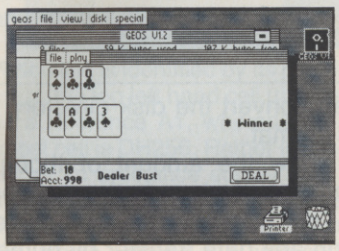
across the bottom of the screen. By clicking on one of the pattern menu choices you change the pattern.

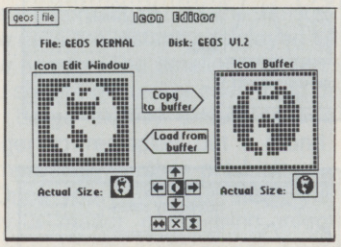
The last of the boxes to be mentioned in the tool kit is the text box and this is one of Geopaint's strengths. You can choose the font you wish and choose any style from bold, italics, underline, outline and reverse. When using text you mark a box and type in your text as you would do with a wordprocessor and the word wrap facility comes into being. If you wish to change the size of the window the text also changes to the box configuration.

The menu bar across the top of the screen contains Geos with a sub-menu of the accessories on the disk. File with a sub-menu of print, preview, update, close and quit. The next menu is Edit with a sub-menu of cut, paste and copy. The next menu is Options with a sub-menu of pixel edit, normal edit, brush and colour on or off, depending on whether you are drawing in monochrome or colour. The final menu is Fonts and it will list the available fonts on your work disk for use in writing text on your drawings.

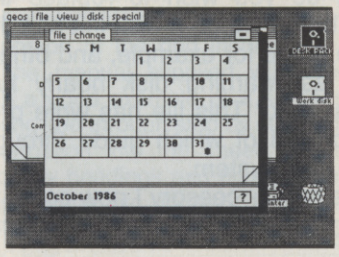
This is the easiest to use drawing program I have ever used on the C64 and Geopaint even on its own would be an exceptional program.

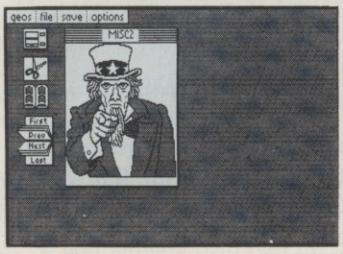
The accessories on the Geos disk are as follows: Preference manager, which allows the user to set his own colour background and border, the speed at which the pointer travels and the shape of it, and to set the date and the time so an accurate log of when you work on a particular file





DeskPack1





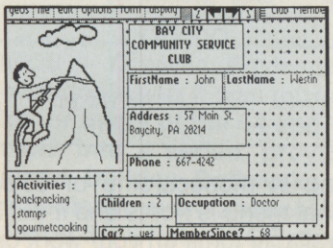
can be recorded.

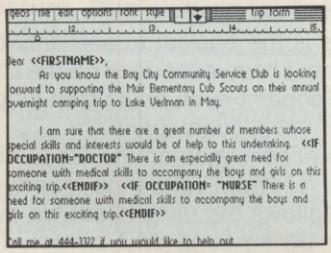
There is an alarm clock which takes its time base from the preference manager settings, there is also a seven function calculator which appears as a window over your main program and it lets you do calculations without leaving your current program. Every desktop has a note-

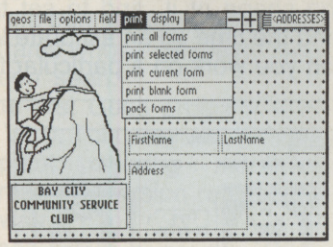
continued on next page

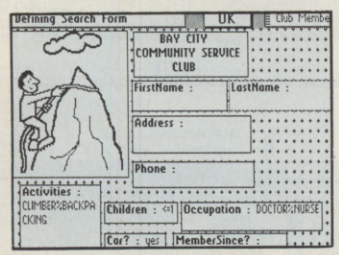
pad and Geos has a 127 page notepad and to store them as notebook on your disk.

The photo manager lets you select your best pictures and keep them in a computerised photo album, each album can contain 127 pictures although you can only retain one picture at a time in the photo scrap hence the need to set up an album.









geoFile

The text manager lets you store often used lines of text in several text albums. Each of these albums holds up to 127 pages, the same as the photo album and the notepad.

One of the accessories that work on disk movement involved in Geos is the disk-turbo which speeds up 1541 disk drive five fold, an increase in the speed of the disk drive is always welcome especially one that does not compromise reliability.

The flexibility of Geos is one of its many strengths. There is a choice of inputs, ie joystick, 1350 mouse, light-pen, graphics pad are all available to use on your work disks – the choice is yours. There is an enormous range of printer drivers, over 26 at the present time, on which 35 printers are supported and Berkeley Softworks are not content to sit back and rest on their laurels, extra printer drivers are added with every additional Geos package.

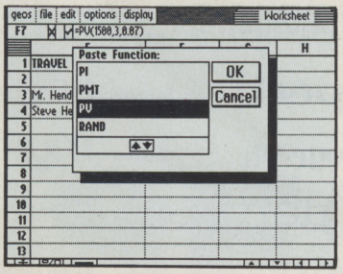
It is also possible to run programs from non-Geos disks and to use the disk top to examine their contents as well as convert the disk directory to Geos format.

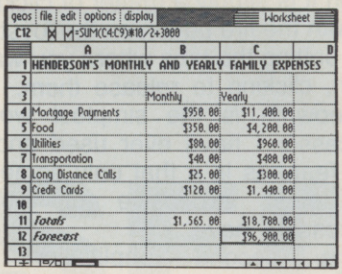
To show the amount of thought that has taken place in the development of Geos, you are guided through any data transfer by numerous windows explaining, for instance, do you wish to replace the copy of the file on a disk if it has the same name for example, and others such as, warning disk nearly full, format disk? This file has write protect on, all of which guide through using the system.

The final accessory I now come to and I have deliberately left this one to last, you can run two disk drives on Geos and that speeds up the transfer of data quite a bit as you can well imagine. There is an even quicker way and that is "REU" ram expansion unit. When using a ram expansion unit you have a 165k C64, you don't have to wait 3 or 4 seconds while the disks spools off the data. It is instantaneous whether you use the C1764 expansion pack or in the case of my daughter, my 1750 pack for my C128 on her C64. In Geopaint the scrolling of the screen has to be seen to be believed. As I have said previously, Amiga style workbench on a C64.

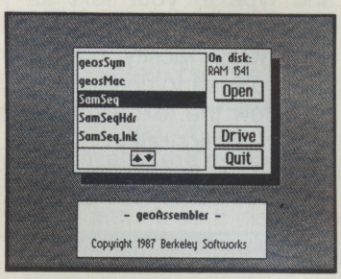
There are several Geos based programs out now such as GEOFILE (a database), GEOCALC (a spreadsheet), GEODEX (a card file index), GEOWRITE (an enhanced word-processor), GEOPUBLISH (a desktop publishing program), GEOSPELL (a spelling checker), GEOPROGRAM (an assembler program).

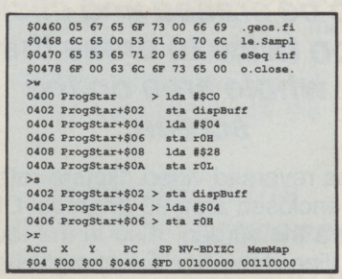
I believe that Geos is the best program ever to arrive for the C64 and that the judge of how good a program is, is would you buy it? I have bought it, in fact to be honest I have three versions. My youngest daughter has V1.2, which was originally mine. My eldest daughter has V1.3, both of them owning their own C64 and disk drive each! And I have V1.4 which I use on my C128.



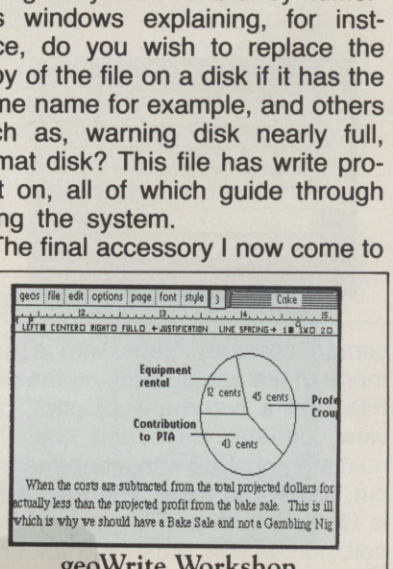


geoCalc





geoProgrammer



geoWrite Workshop

GEOCALC 128

From Berkeley Software comes the first package in a series of GEOS 128 serious applications to maximise your productivity using the GEOS operating system. I hope that you have already read the 'GEOS REASSESSED' review in this issue of C.C.I. so that you are familiar with the graphics based operating system that has become the Commodore standard by which all others are judged.

GeoCalc is a powerful spreadsheet with powerful calculating abilities. You can use its for accounting purposes to keep track of profit and loss in a business, or create a worksheet that will calculate and display a schedule of mortgage repayments for your home. If only it could come up with the money as well!

Geos 128 system disk comes bundled with two programs, GeoWrite and GeoPaint along with its desktop accessories. Altogether, however, these only go part of the way towards a 'complete' software suite that you can utilise for all your serious applications. In order to provide a Geos based electronic spreadsheet, Berkeley Softworks have developed GeoCalc 128. Rather than standing alone, GeoCalc works as part of Geos 128. Designed to be operated along the same lines as each other, making it easier to become familiar with and at the same time very powerful.

'My personal finances are set out showing the next five years using GeoCalc, not a pretty sight'

With all Geos applications there is a minimum amount of equipment needed to run GeoGalc 128. These are Geos 128, a 1541 or 1571 drive, an 80 column monitor and an input device such as a joystick or better still a mouse.

The first proceedure you are asked to perform from the extensive spiral bound manual is to make a backup copy of your disk. This is catered for by a simple disk copy file on the reverse of the program disk. As with other Geos applications several workdisks must be prepared to store your files and customise your needs. Again this is so simple with a few clicks of the mouse, et voila! . . . For my next click.

To create a GeoCalc spreadsheet file is exactly the same as with GeoPaint and GeoWrite so needs no explaining. Once into the sheet the screen displays a menu bar along the top, with the familiar call matrix beneath. Many commands now await you and your mouse, as you would expect you can take on complex trigonomic, exponential, logarithmic and financial calculations, all to an accuracy of at least nine decimal places. Most mathematical operations are accurate to twelve decimal places, (that information was for all of you with *'loadsamoney'* in your bank account).

From the menu bar, file commands, such as update, rename, print and quit can be accessed. Below this bar is another that tells you the cell pointer reference and cell contents. Under that is the spreadsheet with the column headings from 'A' across to 'DH', then the row headings from 1 down to 256, that gives you 28,672 cells.

A cell is a box that holds information. This information can be a constant number such as 42, or it can be a formula such as =B4+D4*1.1. These numbers can be displayed in many forms i.e. they can automatically be set to two decimal places with a dollar sign to indicate for example $5. 25. I wish they would make a pound sign available! Text may also be entered into a cell, this can be altered either to appear plain text, bold or even in italics. Both text or numerical displays can either be centred in a cell or ranged to be left or right.

Each cell is identified by its place in the matrix, the top left hand cell (the first cell) has a reference A1, whereas the furthermost cell is DH256. Rather in the same way as an ordinance survey map reference. Movement around the sheet can be either by single cells with the mouse or by whole screens at a time or, in this 128 version, by means of a turbo scroll. Placing the pointer over a mini version of the whole grid you can drag the pointer to a portion of the grid instantly.

The manual supplied with GeoCalc has a good example of a spreadsheet, taking you through step by step, entering information into the sheet. It sets out monthly headings and different items of expenditure etc. Quite simply it shows how to design your own personal finance budget accounting system. Evry home should have one! I can show the missus why she can't have a new dress this month etc.

Have I told you the story of my poor salary? Well it goes to the top of the spreadsheet and everything underneath it gets deducted from it. Mortgate, Rates, Electricity, Gas, Car, Insurance, Cat Food etc (all the important things) what is left goes on the family's food, if there is anything left! It is no wonder that I have not taken up busking on the corner outside the local Roxy! (May next month).

Any my personal finances are set out showing the next five years using GeoCalc, not a pretty sight, but it clearly shows when I will next need to see the Bank Manager.

The really great thing about spreadsheets is their ability to recalculate quickly, say if there were to be a salary increase of 20% (please!) then GeoCalc could work out the rest of the sheet, probably forecasting that I would have enough in my bank to buy that Amiga I promised myself for Christmas.

Back to reality for a moment. It is ossible for many mathematical functions to be performed using many different calculation methods. The more complex the better GeoCalc likes it. Iteration, thta is the recalculation until a certain condition is met may be performed for example. It is possible to foul up the system by using ridiculously long formulae, but for the brightest sparks amongst us there is plenty of room for manoeuver.

Talking of manoeuvers, copying information around the grid of moving information around, is as easy as a couple of clicks. The sheet gets recalculated automatically all the time, all the new cells are instantly displayed with the new figures. The smaller you can make you sheet the quicker everything becomes. Large clumsy sheets take a little longer to redisplay but I found them comparable to other products.

Once you have your sheet built it is only a matter of keeping information up-to-date. The ability to print the sheet is one of the most important features of any worksheet. GeoCalc presents you with several print options. Only a selected range of cells might be wanted on your printout, this is easy to do. Different quality prints from High, Draft or NLQ can be selected if your printer can cope.

I have tried many other 64/128 spreadsheets, GeoCalc stands up well against most of the opposition. It has many very good points and has made me a Geo 'Fan'. If you already own GEOS 128 or are thinking of buying, also consider GeoCalc 128 it makes sense to maximise your GeoCapabilities.

B.C.

Contact: Financial Systems Software Ltd, Anbrian House, St Mary's Street, Worcester WR1 1HA. Tel: (0905) 611643.
Price: £32.95

RS232 Interfaces

Put the wrong kind of RS232 connection into your machine's user port and you can say 'Goodbye' to your computer! Andy Eskelson tries out two interfaces that make the connection – safely.

There is a well-known joke in the world of communications. It is called the standard, or rather NON standard of the RS232 specification. If the truth betold, it is really a very good system, but it has so many options that cater for so varied a range of types of communication modes, that it is possible to have two devices conforming to the standard but refusing to talk to each other!

When the VIC20 was first produced, Commodore accepted that the RS232 interface was here to stay, and they made some attempt to incorporate it into their new computer. All the machines that followed the VIC have the same sort of facilities to use RS232.

The crunch comes when you try to make use of the 232 system on the CBM machines, as it is NON STANDARD and by that I mean if you connected a real

"poking ±12V into the user port will not do it the slightest bit of good"

RS232 device to the CBM machine then a few chips inside the machine would try to leap out of their sockets! This is due to a cost cutting exercise that did away with the normal method of generating RS232 signals, a UART chip, and also got rid of the interface chips that convert RS232 signals into 0V and 5V logic level signals. Commodore simulated the UART chip with software, and dispensed with the interface chips completely.

The RS232 output of the C64/VIC20/C128 is via the user port. This means that you do lose the use of the user port when you are employing it for RS232 operations, and that the inputs and outputs for the RS232 are connected directly to the CIA chip. It is this chip that is very likely to blow up if you make even a small mistake! RS232 levels are nominally ±12V but the specification does allow for a ±30V swing, I must admit that I have never come across an RS232 system that was set for that high a level. As you can see poking ±12V into the user port will not do it the slightest bit of good, so what is needed is an interface to convert the signals back to the 0V and +5V that the user port can accept without damage.

The two interfaces reviewed are the York Electronic Research unit and the Stack unit. Both are very similar, a small box that plugs into the user port that performs the level conversion. There is some difference between the two units, and that is the connection of the 25 way 'D' type connector. With the York interface there is a 5 pin socket mounted on the unit, and into this is plugged a lead that is terminated at the other end with a 25 way 'D' type. The Stack unit has the 'D' type mounted on the unit itself.

The York interface embodies a very clever idea in that you can insert the plug into the socket in two positions. This automatically reverses some of the connections allowing connection of both DTE and DCE (terminal or host computers) to the interface. York mention in the manual that you may have to resort to reconnecting the leads in the 25 way connector to meet some of the more oddball configurations.

The Stack unit is aimed very much at the more experienced comms user, as it provdes many options that allow you to control the polarity of the signals. This is achieved by linking certain pins on the 25 way 'D' type. Stack do not provide any connectors other than that mounted on the unit, so you will have to make up the lead as well. As you will also have to make the links in order to get the interface working it follows that you should know how to use a soldering iron.

Both units come with software suitable for the C64/C128 and the +4 machines. Setup, simple Terminal emulators, and file transfer programs are included for most of the machines and they work very well. However the York interface software also includes Viewdata terminal emulation (Prestel format) and it is mentioned that a file transfer program for the IBM PC is also available.

When it comes to the handbooks the York manual wins hands down. It is a very useful book, offering in fairly simple terms an explanation of how to use the interface and also what RS232 is all about. Modems are also explained and a short list of on-line databases and BBs is given. Lastly truly excellent, clear and explicit instructions of how to program the RS232 system from basic and machine code.

The Stack handbook is also very well produced and clearly set out but it is mainly a handbook on the interface and it was never intended to be otherwise, a few snippets of information are given, but these are gleaned from the description of the interface.

"Both units come with software suitable for the C64/C128 and the +4 machines"

Both units are very simple and also easy to use. In general there is nothing to choose from between the two units in operation.

The York interface is better suited to the beginner as it can be set up with the minimum of fuss and you will not normally have to worry about making up a lead.

The Stack interface is a more complex device that will enable many communications problems to be solved. It does need some know-how on the part of the user to make up the correct lead and put the links in the correct position. The Stack unit also has one other advantage and that is the price. It is considerably cheaper than the York interface, but then again the better software of the York unit tends to balance this price difference.

Stack
Meedmore Ltd
051-521 2202
Price: £20.00

York Electronic Research
0904 610722
Price: £30.00

COLOREZ 128

There are plenty of graphics packages but not so many utilities that enhance their possibilities. Andy Eskelson examines one that aims at the 'hidden' graphics modes.

It seems that the BASIC 8 development system has fired up a great deal of enthusiasm in the field of C128 graphics. B-Ware Computer Systems have produced a very attractive package incorporating this system. Colorez 128 performs a graphics screen translation between the 40 column screen and the 80 column screen.

This means that you can use your favourite drawing package to create an image on the 40 column screen and then use Colorez to translate it to the 80 column screen.

There is a very minor limitation of the system and that is due to the hardware of the 128. Because of the memory limits in the 80 column screen, when you transfer the 40 column screen to the 80 column screen you lose the bottom three rows of the 40 column screen.

Colorez is NOT a drawing package but it is a collection of machine code routines that perform the various translations. There is a very nice utility program that will save pictures and do the various transfer functions. It is fully icon driven and is controlled by the joystick; full dos wedge commands are supported. A second method of selecting the various functions is provided: the function keys – all functions APART from the save and load functions, for which you have to use the normal basic commands.

As Colorez is a machine code program, the SYS entry points have been given so that you can make use of the routines with your own programs. NOTE THAT YOU ARE NOT PERMITTED TO GIVE THESE ROUTINES AWAY! A couple of RUNTIME modules are provided that allow you to make use of the graphics that you create with Colorez and these routines you may use freely in your own programs.

Another useful feature is that the RAM expansion modules are fully supported and you can create a 'slideshow' display that is very fast. In general this is a very agreeable package that will provide many helpful options for the keen graphics user. It is very gratifying to see so much support for the C128 that makes such good use of the 'hidden' graphics modes of the 80 column chip.

A.E.

Price £14.95

Contact Financial Systems Software Ltd, Tel: (0386) 750217.

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Feature

CONVERT TO 1581

That is not so much an instruction as a description of Peter McDonald whose experience with this new drive, his 128,Vizawrite and the Super 81 utilities makes interesting reading.

The description of the new Commodore 1581 drive made it sound like a dream. In the first place, it uses the increasingly popular 3.5″ disks. Second, the disk's capacity is over twice that of the 5.25″ disk used with the 1571 drive, and therefore four times the capacity of the 1541 drive. And the price from Financial Systems Software Ltd is only £199.95.

I suppose that anyone buying a C128 now would have to think very seriously about getting this drive, instead of the 1571. The only trouble is that, as yet, there is very little software available for the 128 in 3.5″ format.

Paradoxically, the person who can most benefit from the 1581 is the person who already owns a 1571 drive! Why? Because there are at least two copying programs on the market which will enable you to copy from 1571 to 1581 drives. So you can certainly transfer your own programs from one format to the other. Transferring protected programs, of course, may present difficulties.

But what about the person who has a C128D and is therefore 'stuck' with the 1571 as a permanent part of his system?

I consistently use Vizawrite Classic on the C128D. Were they bringing out a 1581 version? They said they were, and I now see that Financial Systems are advertising it. But was there any reason why I should not use my present Vizawrite disk? After all, if the 1571 drive was an inevitable factor in the set-up, I might as well use it.

I rang Financial Systems and they were very helpful. They explained how I might use the 1581 as a second drive. And they told me about Free Spirit Software Inc's *Super 81 Utilities* (£29.95) which they stock.

Encouraged, I ordered a 1581 drive and *Super 81 Utilities* from them. To be honest, when I first tried to get this system working, I was soon in difficulties. First, the User's Guide has obviously been written by an engineer for the benefit of people who have already used 3.5″ disks. Figure 3, which purports to show you how to insert the disk into the drive, in fact gives the view *from beneath* the disk, though nothing would tell you this. But even when that was unravelled, I could not get any sense out of the drive.

I rang up Financial who were very patient with me. Obviously they had previous experience of dealing with the occasional customer who is not quick on the uptake. Over a series of perhaps half-a-dozen telephone calls, they took me through a fault-finding routine. When I reported what proved to be the last failed test, they were satisfied that the drive had been damaged in transit. So I returned it. Within a week of my posting it, they rang me to say it had been reset and was on its way by courier. Next day, it was back in my home, working like a charm.

So how does it combine with Vizawrite Classic in its 5.25″ version?

I use one of Wiesemann & Theis's Printer-Buffers. Its cable had to be removed from the back of the 128D and the 1581's cable inserted into the computer instead. The Buffer cable went into the back of the 1581. There are two dip switches at the back of the drive. These had to be set for Device Number 9 because the 128D's own 1571 drive is, of course, Device Number 8. Appendix A in the 1581 manual tells you that this involves adjusting the two dip switches so that the left switch is down and the right one up. The manual does not say so, but this means left and right as you look at the back of the drive.

To test *Super 81 Utilities*, I used it to format a 3.5″ disk in the 1581 drve, and then to copy on to it the contents of a 5.25″ disk in the 128D's own 1571 drive. For obvious reasons I copied a disk containing documents prepared on Vizawrite Classic.

So we were ready for the crucial test. I booted Vizawrite Classic in the 1571 drive in the usual way. I then loaded the Printer Profile and the Glossary from the 5.25″ disk I normally use.

"in the manual were the words: 'When using disk drives with different device numbers, or dual disk drives with a drive 1, use this command to re-direct subsequent disk accesses'. Well, yes!"

Now, how was I to bring the 1581 drive into play as the second drive? The Vizawrite manual, which is usually helpful, in this case assumed a little more knowledge in the reader than I had. I could understand from it that the command I wanted was Disk Route. But alongside a reproduction of the Disk Route 'window' (set at Drive 0, Device 8) in the manual were the words: 'When using disk drives with different device numbers, or dual disk drives with a drive 1, use this command to re-direct subsequent disk accesses'. Well, yes! Fortunately there are (I think!) only four possi-

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CONVERT TO 1581

ble combinations. The one I wanted proved to be Drive 0, Device 9.

Having set the switches, I was able to type Logo-F-L, which is the command to show the directory of that disk on screen. Sure enough: there it was. I had successfully copied files on to the 3.5″ disk, and the computer was reading that disk within Vizawrite.

At that stage I could proceed exactly as I would normally proceed, using Vizawrite on the C128D. From the practical point of view, whilst I was writing and saving Vizawrite documents, I had no need to remember that I was using a second drive. But it was not easy to forget, for the operation, compared with the 1571, is breathlessly quiet. If it is faster, that is not too noticeable. But what induces a wickedly enjoyable sense of well-being is the moment when you ask for the directory, immediately after formatting, just to make sure that all is correct.

With the 1571 drive, using both sides of a 5.25″ disk, the opening message on Vizawrite Classic, immediately after formatting, was '1328 Blocks Free'. With the 1581 it is '3160 Blocks Free' . . . appreciably more than twice as much!

Do you need *Super 81 Utilities* if you want to use Vizawrite Classic in this way? the strict answer is: 'No'. You can copy an individual file to the 1581 drive from the 1571 drive by loading it into the computer in the usual manner from the 5.25″ disk, then switching the Disk Route as explained above, so as to make the program address the 1581 drive, and then give the File-Save command in the usual way.

But of course that is a tedious method if you want to copy a lot of files. What if you want to copy a whole diskful? Well, Vizawrite Classic has a Disk Back-Up command, but if you try to switch from Device 8 to Device 9 or vice versa in the middle of that, you switch yourself out of the Back-Up program. There may be a cunning way to overcome that snag but, if so, I haven't hit upon it yet.

Super 81 Utilities, on the other hand, does enable you to format your 3.5″ disk, and to copy to it all the files on a 5.25″ disk, or just selected files from a disk. So I would say that you would be disadvantaged if you did not have that program, or one giving similar facilities.

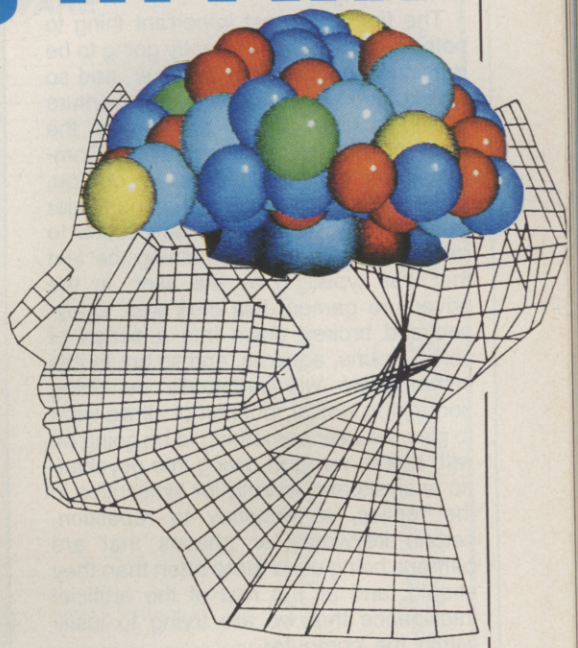
Clearly, the increased storage capacity of the 1581 drive should be used not merely to get more material on one disk but to make life easier for you. What if you put the Glossary and the Printer Profile on every disk? You only have to load these two items once per session. But it would save time normally spent in disk-swopping if you put these on every disk, so that, whichever disk you picked up first, you would still be able to load these two essentials before beginning the session proper. A profligate use of disk-space? My Glossary fills 80 Blocks, and my Printer Profile fills 7. So we are talking about 87 blocks out of a total of 3160 blocks. If you use 87 of them for that purpose, the number of blocks remaining on that disk will still be twice as many as there are on a 5.25″ disk formatted on the 1571 drive!

You will gather that I am drooling over the 1581. It is a great pity that it was not ready when the 128D first appeared. If that machine had contained the 1581 instead of the 1571, we might have had much more 128 software in 3.5″ format. On the other hand, unless it also took off as an appropriate companion for the C64 (with which it is compatible) there would have been problems about using C64 programs on the 128D. You might have needed to buy a 1541 so that you could copy from it to the 1581! Then you would have had two drives (as I have now!). I understand that there is now a new model of the C64, at least in prototype stage, which has a built-in 1581 drive. So perhaps the days when the newcomer needs two drives to get the best of all worlds are coming to an end.

P.M.

Programming in A.I.

CCI has been called 'The Intelligent Reader's Magazine'. Peter Gerrard, with this article, starts a series that may get it called 'The Artificially Intelligent Reader's Magazine' . . . Here he tells you how to program 'Why do you think you hate the dog next door?' and other equally useful psychiatric questions.



Several years ago, whilst compiling a glossary of computer terms for a book designed to introduce novices gently into the world of computing, I defined artificial intelligence somewhat lightheartedly as '*that displayed by those who talk about it*'. Perhaps not altogether surprisingly, this got me into a little spot of bother with some fierce defenders of research into and ideas about artificial intelligence, so if Nick Green should perchance be reading this then I apologise profusely. But not that *profusely*!

For a rather more serious definition we could do worse than use the following: '*The branch of computer science which explores how the mind works, and produces 'models' simulating the way a task is learned and how problems are solved*'. I blame it all on Charles Babbage, myself. He was a British mathematician who assisted John Herschel (son of Sir William, the chap who discovered Uranus) in his astronomical calculations in the nineteenth century, and he designed calculating machines which are considered by many to be the forerunners of the computers that we use today.

Incidentally, some people still confuse A.I. (as Artificial Intelligence will be referred to form now on) with cybernetics, or at least that the two are related in some way. Not really. Cybernetics can be defined as '*the science of organization, communication, regulation, and reproduction of living systems, and their mode of evolution and learning. The processes are replicated in a laboratory to make electronic limbs, robots, and automated factories*'. Thus the 'creations' of cybernetics cannot learn or think for themselves. They are taught a task and can reproduce it endlessly, with mind-boggling repetition , but they do not learn or show any signs of intelligent thought. A robotic arm painting a car might look very clever, but it is only following a pre-determined set of instructions. A.I. tries to get the computer to think, whether it be the lateral thinking of Edward de Bono (you see, there is a Bono outside of the rock band U2!), or whatever.

A good example of an A.I. program might seem to be something like Colossus Chess, where the computer has to think to a very high level in order to present the player with a reasonable game of chess. However, the machine isn't thinking at all. It is merely following pre-set instructions. Any computer program will do that, the idea is to present it so that it appears that the computer is learning. To do this it must acquire more knowledge, and for that it needs successively more information from the person using it. Chess follows pre-defined rules, they cannot be changed, and the best home micro chess program in the world will not learn. In a given situation, the chances are that it will repeat the same move. Not every time, a certain random element will be in there, but random movement is not the same as learning.

Anyway, leaping forward a few years from the days of Babbage, we find computer languages designed to assist in A.I. work and Cybernetics, and in particular we have Lips and Logo. This latter presumably takes it name from *logos*, the Greek for *word* as the embodiment of 'reason' within the Universe. New Testament writers identified it with Christ, and hence the second person of the Trinity. The precise meaning of this Trinity has caused endless dispute down the centuries, and indeed was the chief cause of the split between the Roman Catholic and Eastern Orthodox religions. (You discover all sorts of things in a Gerrard article!)

'Eliza fits into the A.I. world because the computer is attempting to be a psychiatrist'

But back to Logo. With its Turtle graphics, this is admirably suited for cybernetics work, instructing machines to turn left here, move 3 millimetres, turn right, and so on. Lips (standing for List Processing Language) is more suited for A.I. work. One of the most popular of the programs in this field is a little something known variously as Doctor or Eliza. Quite how it got this nane I have no idea, but it is essentially a comptuer attempting to be a human psychiatrist. Sigmund Freud (grandfather of our very own Clement) has a lot to answer for.

Eliza fits into the A.I. world because the computer is attempting to be a psychiatrist, and the program attempts to simulate the way a psychiatrist's mind works and how he approaches his problems. His problems are, naturally enough, those of his patients, but our problems will be set about writing a similar program in Commodore Basic. First of all, what does the program do?

As this is only the first article in a series of six program is not as yet going to do very much, but in a rough and ready form it will behave as shown in Figure One.

The computer starts by saying 'Okay, tell me something about yourself', and waits for the user, or patient, to tell it something. Then, by a very simple algorithm that will be considerably altered and expanded in the months to come, the computer takes this initial response and re-phases it. So it goes on, with one or two special responses to various phases being used by the computer from time to time. I must stress that this is only a simple version, things will get much more complicated in later months, but we've all got to start somewhere!

In a proper and finished Eliza program the computer will begin to learn about its patient, and will hopefully manage to elicit more and more information about him or her the longer the program continues to run. This sort of learing curve can be extended to other sorts of prog-

rams, as we will see later, but for now we will concentrate on Eliza and take a look at the listing.

The first and most important thing to note is that we are constantly going to be requiring an input from the user, and so an old friend from the days of adventure writing is used. If you did not get the January 1988 issue of Commodore Computing International then shame on you, for all was explained in that particular issue. Briefly we use this subroutine to return a string, cm$, containing the text that was typed in by the user. In the adventure games, this cm$ was analysed and broken down into a series of verbs, nouns, adverbs, and so on. In this instance we will eventually be doing something similar, but first of all we want to give the user something to be going on with before we start diving into psychiatric analysis and looking for similarities in the replies, a tendency to repetition, certain keywords or phases that are perhaps being used more often than they should, and all the rest of the artificial intelligence that we are trying to instill within the computer.

```
Okay, tell me something about yourself.

I don't like the dog next door
Why do you think you don't like the dog next door?

Because it doesn't like me
Why do you think it doesn't like you?

Because it doesn't like anybody!
Let's keep talking about you ...

I'd rather talk about you
Don't bring me into it ...

Why not?
I'll ask the questions ...

I am going to go to the pub
Why do you think you are going to go to the pub?

Because I am fed up of talking about myself
Why do you think you are fed up of talking about yourself?

Goodbye
Let's keep talking about you ...

No!
Stop being negative.
```

Fig 1

```
Sample A.I. program!

5 PRINT "Okay, tell me something about y
ourself."
10 PRINT:GOSUB 5000
12 FOR i=1 TO LEN(cm$):a=ASC(MID$(cm$,i,
1)):GOSUB 200
13 NEXT
15 z$=cm$
20 self=0
30 IF LEFT$(cm$,2)="no" THEN PRINT"Stop
being negative.":GOTO 10
40 IF LEFT$(cm$,4)="yes " THEN PRINT"Tha
t's a healthy, positive attitude.":GOTO
10
50 IF LEFT$(cm$,7)="because" THEN cm$=MI
D$(cm$,9)
60 FOR i=1 TO LEN(cm$)+1
65 IF MID$(cm$,i,1)="?" THEN PRINT "I'll
 ask the questions ...":GOTO 10
66 IF MID$(cm$,i,4)="i am" AND i<>1 THEN
 220
67 IF MID$(cm$,i,4)="i am" THEN cm$="you
 are"+MID$(cm$,i+4):self=1:GOTO 70
70 IF MID$(cm$,i,2)="i " AND i<>1 THEN 2
30
80 IF MID$(cm$,i,2)="i " AND i=1 THEN cm
$="you "+MID$(cm$,i+2):self=1
90 IF MID$(cm$,i,2)="my" THEN cm$=LEFT$(
cm$,i-1)+"your"+MID$(cm$,i+2):self=1
95 IF MID$(cm$,i,3)=" me" THEN cm$=LEFT$
(cm$,i)+"you":self=1
96 NEXT
97 you=0
98 FOR i=1 TO LEN(z$)
100 IF MID$(z$,i,4)="your" THEN you=1
```

A friendly greeting in line 5 and a call to the input subroutine in line 10 are followed by lines 12 and 13 (and the aid of line 200 and 210), which convert everything typed in into lower case. That is, the sentence 'I don't like the dog next door' would end up as 'i don't like the dog next door'. You may care to add a line 1 to change the background, border and text colours: I was content in this early version to run it as it was, using the CMB Logo key and shift key to put everything into upper and lower case rather than upper case and graphics.

Having done that, line 15 stores our input in another string, z$, for reasons which will be looked at later. Briefly it is to check if the user is trying to interrogate the computer, rather than the other way around, but we will examine that in more detail in due course.

'Two simple checks then follow in lines 30 and 40 to see if the user has typed in a single word yes or no response to a comment from the computer'

Two variables, self and you, are used to see if the user is talking about himself and/or the computer. The first of these, self, is set to zero in line 20. Two simple checks then follow in lines 30 and 40 to see if the user has typed in a single word yes or no response to a comment from the computer. Short responses are not preferred, and a suitably swift retort is made by the computer before it sits and waits for something else to be typed in.

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```
110 IF MID$(z$,1,3)="you" THEN you=1
120 NEXT
130 IF you=1 THEN PRINT "Don't bring me
into it ...":GOTO 10
140 IF self=0 THEN PRINT"Let's keep talk
ing about you ...":GOTO 10
150 PRINT"Why do you think ";cm$;"?":GOT
O 10
200 IF a>96 AND a<123 THEN a=a-32:a$=CHR
$(a):cm$=LEFT$(cm$,i-1)+a$+MID$(cm$,i+1)
210 RETURN
220 cm$=LEFT$(cm$,i-1)+"you are"+MID$(cm
$,i+4):self=1:GOTO 70
230 cm$=LEFT$(cm$,i-1)+"you "+MID$(cm$,i
+2):self=1:GOTO 90
5000 REM **********************
5010 REM input routine
5020 REM as in adventure games
5030 cm$=""
5040 PRINT "[rev]+[off,cl]";
5050 GET a$:IF a$="" THEN 5050
5060 REM analyse character
5070 z=ASC(a$)
5080 REM no restrictions on characters b
eing typed
5090 zl=LEN(cm$):IF zl>75 AND (z<>13 AND
 z<>20) THEN 5040
5100 IF zl=0 AND (z<97 OR z>122) THEN 50
50
5110 IF z=13 THEN PRINT " [cl]":RETURN
5120 IF z=20 THEN PRINT CHR$(20);:cm$=LE
FT$(cm$,zl-1):GOTO 5040
5130 cm$=cm$+a$:PRINT a$;:GOTO 5040
```

In this cut-down version of the real program we then eliminate the word 'because' from the start of the user's input. It is not necessary, but many people will type it in, this being the way in which they might speak to a real psychiatrist. Lines 60 to 96 do most of the donkey work for us, analysing in turn everything that the user has typed in. Not really analysing, of course, only words concerning the user himself are looked for, although line 65 does check to see whether or not the user has asked a question. This, in our little program, is not allowed: the computer asks the questions!

The next six lines of the program, namely lines 66 to 95 (plus a little help with lines 220 and 230), concern themselves with checking whether or not the user is talking about himself. Thus lines 66 and 67 look for the phase 'i am', the two separate lines being necessary because they might be at the start of a sentence (as in line 67) or halfway through it (as in line 66). We cannot take the left hand side of a string starting from the character before it started, and hence the two different lines. Similarly, lines 70 and 80 look for 'i', which would again tell the program that the user is talking about himself. Once more, we have two lines in case 'i' occurs at the start or mid-way through a line. Note the space after the 'i'; it would not do to pick on the word 'if', for example. Finally we look for my and me, the latter being expected to be at the end of a sentence and trusting the user to type in his feelings grammatically. With all these six lines we set the self variable, as well as changing the relevant part of the input so that we can throw it back to the player in form of a question. This is the essence of any Eliza-type program, taking what the user has input and presenting it back in question form. We will, over the next few months, go much further than this.

'We are guessing animals, and the more animals the computer knows about the better it can have a guess'

Lines 97 to 120 are our next check on the user's input, and here we're looking for the occurence of 'you' or 'your', indicating that the user is attempting to address the computer. If he is, then there is no need to restructure the input, we just need to set the you variable to 1. Then, in line 130, if this variable has been set we tell the user to stop trying to bring the computer into things and concentrate on talking about himself. If the self variable hasn't been set, line 140 sternly informs the user to keep talking about himself, but if all is well and good then line 150 throws the user's input back in the form of a question, inviting him to enter more information. Thus 'I hate the dog next door' would become 'why do you think you hate the dog next door'.

This, of course, teaches us nothing about the user. It is only a small, simple program, that will be considerably enhanced as we go on. As it stands it is little more than a piece of harmless fun, but using the limited number of responses that we have it means that we are not going to get very far. As an introduction to A.I. in general and Eliza-type programs in particular, however, it does have its uses. Keep it on disk or tape, we will be using parts of it again next month.

And now, a spot of fun to finish with!

I am going to say very little about this program, other than that it is another example of a computer seeming to learn as it goes along, and it could be enhanced by a willing parent who wants to entertain the children (or themselves!) for a while. We are guessing animals, and the more animals the computer knows about the better it can have a guess. Entering the characteristics of the animals enable it to learn about them. Again, harmless fun, but not without its uses. Just one point to note when typing it in. In the listing, we have missed out lines 5000 to 5130, as these are exactly the same as in the sample Eliza program. So, type in line 10 to 615 and lines 10000 to 11004, and then type in (or merge from tape or disk) lines 5000 to 5130 of the Eliza program to finish things off.

And that is that, Well, for the time being. *Bye for now.*

P.G.

Animal listing

```
10 REM ANIMALS program
15 DIM name$(100),fact$(100),number(100,
2)
20 GOSUB 10000
25 REM
```

```
30 PRINT "[clr]";
32 PRINT"Think of an animal, then press
SPACE"
35 GET a$:IF a$<>" " THEN 35
40 PRINT
42 g=0:guess$=""
45 PRINT "Tell me something about it ...
":PRINT:GOSUB 5000
46 fact$=cm$
50 FOR i=1 TO 100:IF name$(i)="" THEN 58
55 NEXT
58 a=i:beg=1
60 FOR i=beg TO a-1:FOR j=1 TO LEN(cm$)
65 a$=fact$(i):IF a$=MID$(cm$,j,LEN(fact
$(i))) THEN 80
70 NEXT j
75 NEXT i:GOTO 300
76 PRINT:PRINT"I don't know that animal
...":GOTO 500
80 GOSUB 600
85 GET a$:IF a$="" THEN 85
90 IF a$="n" THEN 100
92 IF a$="y" THEN PRINT:GOTO 30
94 GOTO 85
100 g=i:guess$=name$(i):IF i=a-1 THEN 30
0
102 beg=i+1:GOTO 60
300 PRINT:PRINT"Thinking of characterist
ics ...":beg=1
302 FOR i=beg TO a-1
304 IF number(i,1)=g AND i<>g THEN 310
306 NEXT
308 GOTO 400
310 GOSUB 600
315 GET a$:IF a$="" THEN 315
320 IF a$="n" THEN 330
322 IF a$="y" THEN PRINT:GOTO 30
324 GOTO 315
330 guess$=name$(i):IF i=a-1 THEN 400
332 beg=i+1:GOTO 302
400 PRINT:PRINT"Thinking of size ...":be
g=1
402 FOR i=beg TO a-1
404 IF number(i,2)=g AND i<>g THEN 410
406 NEXT
408 GOTO 76
410 GOSUB 600
415 GET a$:IF a$="" THEN 415
420 IF a$="n" THEN 430
422 IF a$="y" THEN PRINT:GOTO 30
424 GOTO 415
430 guess$=name$(i):IF i=a-1 THEN 500
432 beg=i+1:GOTO 402
500 PRINT:PRINT"What is your animal ? ";
505 GOSUB 5000:name$(a)=cm$
510 fact$(a)=fact$
515 PRINT fact$(a)", eh?"
520 PRINT:PRINT"What size is it (1=small
, 2=medium, 3=large) ? ";
525 GOSUB 5000:number(a,2)=VAL(cm$)
530 IF guess$="" THEN number(a,1)=a:GOTO
 535
531 number(a,1)=number(g,1)
535 GOTO 30
600 PRINT:a$=LEFT$(name$(i),1)
610 IF a$="a" OR a$="e" OR a$="i" OR a$=
"o" OR a$="u" THEN 612
611 PRINT"Is is a "name$(i)" <Y or N>? "
:GOTO 615
612 PRINT"Is it an "name$(i)" <Y or N>?
"
615 RETURN
10000 FOR i=1 TO 5:READ name$(i):NEXT
10002 FOR i=1 TO 5:READ fact$(i):NEXT
10004 FOR i=1 TO 5:FOR j=1 TO 2:READ num
ber(i,j):NEXT j,i
10006 RETURN
11000 DATA "cat","dog","budgie","goldfis
h","hamster"
11002 DATA "chases mice","barks","flies"
,"swims","runs round in a wheel"
11004 DATA 1,2,2,2,3,1,4,1,5,1
```

★ Program Submission Procedure ★

DO NOT submit any program or routine that you do not either own or have property authority to do so.

ALWAYS include your name, address and the date on all material and any enclosures.

Do not forget to make it clear exactly which computer/s your program or article is applicable to.

Include ROM or DOS versions wherever they are pertinent.

If you have to submit work which is hand-written then you must make sure it is printed clearly.

Number all pages.

Never use staples. Use paperclips if necessary.
If you are saving your program to tape then save it AT LEAST twice on each side.
When you save a program on disk save it twice and call the second file "BACKUP".

Remember to label all tapes and disks with your name and the title of the program. Label tape or disk with your name and the name or title of the program.

Always ensure that disks are well packaged. They should ideally be sent in a commercial disk mailer or at least packed between two pieces of hardboard or rigid plastic.

Please allow at least 8 weeks for acknowledgement as all programs have to be thoroughly tested and made into a suitable format.

Enclose a self-addressed stamped envelope or package if you would like your program to be returned.

★ Programming tips ★

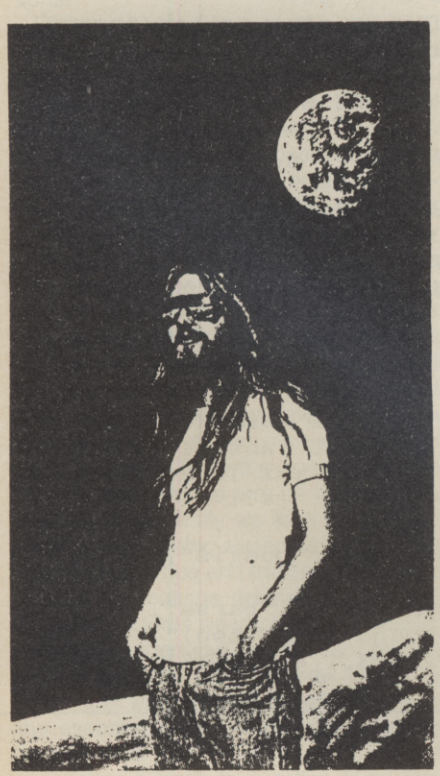
If you can, use CHR$(x) type commands instead of those hard to read graphic symbols.
If necessary renumber your program on completion a many readers use auto number utilities to ease typing in.

Try to keep instructions within the program itself at a sensible level. You can expand on them within the accompany text if necessary.

TEST your programs before submitting them or even better get a friend to test them for you.

If a program contains machine code data please use decimal and not hex as there are fewer digits to be confused. Try and keep the same number of data statements in each line. Please add some form of error checking if your program contains more than five lines of data.

Intolerance . . . No, it's not about exact measurements in engineering, nor is it a movie by D. W. Griffith. It is something a wandering Yak in Wales finds weird . . . Jeff Minter's back.



Felicitations, O peltless ones. Yak has returned from assorted cosmic wanderings to assail your meagre mental faculties once more.

Here in Wales it is a time of transition. The lightsynth has been finished; the master disks sent off to be duped, and the manual written. (Two weeks it took me to write that flippin' manual – I shouldda stuck to spritepushin' on the Commodore methinx, a lot easier!) Now I've built the system I've gotta learn how t'fly it properly, and fast – I got a gig on the 16th, and there's the work on the upcoming video, too; and all the while I'm thinking about a new game on the ST, which I'll start Real Soon Now.

But, like I said, it's a time of transition; so today I spent lying on some not-uncomfortably-damp Welsh grass, soakin' up the rays and reading my stash of Dr. Atomics and Freak Brothers. I guess I'll get around to beefing up the KML system stacks so that v1.1 will be able to support heavy recursion, and adding PUSH and POP commands, but later. When it's got dark and there are no more rays for the Yakly body to absorb.

Yow. A touch of weirdness I came across the other day put me back on a train of thought I've been pursuing off and on for a while now . . . some of the weird attitudes held by you Commodore-users (and, be fair, by a lot of Atari-users, and Spectrum-users, and so forth) . . .

Well, returning from my cosmic wanderings, I perused the latest CCI, and noticed, on the letters page, this totally WEIRD letter. Y'see, this guy wuz writin' in, generally praising the mag I guess, but he signs off, an' extends greetings to all at CCI, 'except Jeff Minter, coz he plays shoot-em-ups'.

Weird.

I mean, everybody gets off on their own thing. OK? I like shoot-em-ups (largely because I spend my working hours solving logic problems on computers – it's called 'programming' – and choose not to do so for my leisure); others play adventure games, some make music, some write novels, whatever. There's an endless variety of ways to use a computer for leisure activities.

Now, that letter set me thinking about something strange which seems to affect a lot of people in many ways, and not only within the field of computing. No, far from it.

The strange thing is: intolerance.

Where does it come from? I mean, I know artists, composers, zap-'em fiends, D&D types . . . they're my friends, and I don't discriminate against any of them because they don't happen to like shoot-'em-up games, and they don't hassle me 'coz I'm not a composer, or because I don't know my Zork from my elbow. I mean, so what, we're all having a groovy time doing what we want to do, so who cares?

So where does the intolerance come from? Am I, in some way, hassling our adventure-playing letter-writer by enjoying shoot-'em-ups, and thereby legitimately incurring his animosity? I don't think so.

The intolerance is even worse when we get to types of computer. Oh yes, I've come across Amiga-owners who say that they hate the ST, and they hate the people who program it.

Why? Are they stopping you, and other Amiga-enthusiasts, from doing your own thing? I mean, hate is a strong and very negative emotion, and I find it weird that people should feel it for someone else who is just enjoying himself in a different way, without adversely affecting anyone.

I mean, I'm an ST user, you're an Amiga user: what do we have in common? We're both using incredible machines, machines which would have been impossible to own only five years ago; we're part of the first generation of humans ever to have personal access to the single most powerful tool ever invented. We're both keen, we want to get involved, to use our machines for leisure activities previously undreamed-of.

What are our differences? 1MHz of clock speed, 3584 colours, and a handful of graphics modes.

No cause for intolerance whatsoever, at least to an enlightened mind – so why does it persist? The attitude extends even to the editors of magazines – one, starting up a new Amiga mag, said he was going to 'declare war' on ST users . . .

I say: cease to perpetuate this nonsense! And it's down to the magazines as well as the users. Enough already of this Amiga vs. ST, Adventure vs. Zappers, and all such goat's-pee. We're all in this together; this is just the start of what could turn into the most exciting Adventure of all time. Waste not your energies on supporting only your own kind. Better to devote the combined energies of those of us already enjoying computers – regardless of machine type – to something worthwhile, like using our combined expertise to make computing more accessible, to get many more people using the machines for enjoyment, for creativity, to expand the potential of their minds.

Those who persist in the 'machine-comparison' wars are just displaying a schoolyard 'my-bike's-better-than-your-bike' type of mentality. The name of the machine isn't important; it's what you do with it that counts.

On that note, I shall finish for this month; and go off down the pub for a pint of Buckleys Bitter. May the Force be with you all.

Including Adventure players!

J.M.

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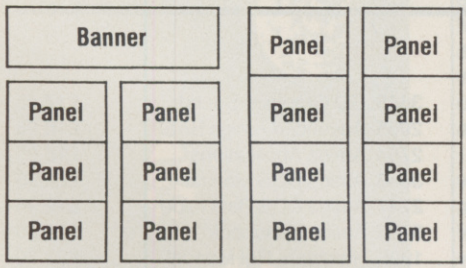
NEWSROOM – A Quick Reference Guide

One of the most popular programs ever to emerge for the 64/128, Springboard's Newsroom fascinates almost everyone who tries it. We publish this guide as an aid to Newsroom fans.

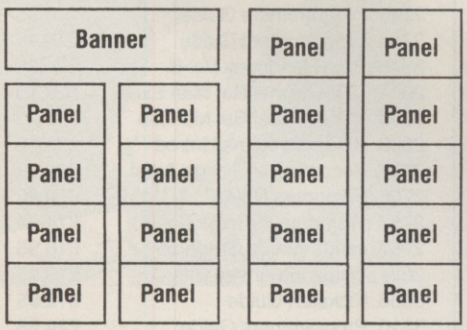
LAYOUT OPTIONS:

The Newsroom offers four types of page layout, each with a particular combination of panels and banner:



8½" × 11" letter size page with banner

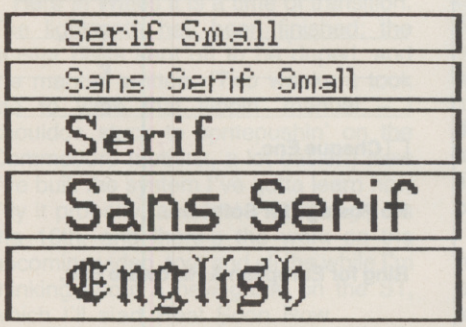
8½" × 11" letter size page without banner



8½" × 14" legal size page with banner

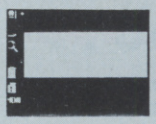
8½" × 14" legal size page without banner

TYPE FONTS TO CHOOSE FROM:

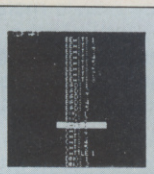


The Newsroom has five type styles, or fonts, from which you may choose. Fonts can be used in the Banner, Photo Lab and Copy Desk Work Areas.

1 MAKE A BANNER

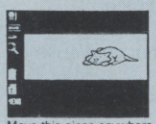


Select Banner Area from Picture Menu and you will be brought to Banner Work Area. (Selection key in dicated on back.) Select Picture Icon for a list of available clip art pages.



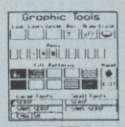
Move cursor bar onto the page name you want and select it.

Move the hand cursor onto the piece you want. Pick it up by pressing SELECT key.



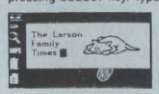
Move this piece anywhere in Banner Work Area and drop it by pressing SELECT key.

A second image can be dropped or move the image off work area into Icon area. Select Crayon to display Graphic Tools Menu.



Select large SERIF font and EXIT box. Return to banner.

Position cursor in work area. Lock in place by pressing SELECT key. Type



banner name. When done, press SELECT key again.

To save your banner, select Disk Icon, then choose SAVE BANNER option.

Insert a data disk into your drive and assign a name to your banner. Press RETURN key and banner will be saved to disk.

If you would like to get some immediate feedback and print out the banner you have just created, select PRESS in the Picture Menu and follow the instructions to PRINT A BANNER. Return to Picture Menu by selecting Menu Icon.

MENU

2 MAKE A PHOTO

Select Photo Lab Area from Picture Menu and you will be brought to Photo Lab Work Area. (Notice it's bigger than Banner Work Area.) Select Picture Icon for a list of available clip art pages.

Move cursor bar onto the page name you want and select it. (Our example is from Clip Art B of The Newsroom Clip Art Disk)

Move the hand cursor onto the piece you want. Pick it up by pressing SELECT key.

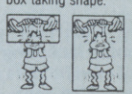
Move this piece to the center of Photo Lab Work Area and drop it in place by pressing SELECT key.

A second image can be dropped or move the image off work area into Icon area. You will now "crop" the part of the art that you want as a PHOTO. Then you'll save it to disk. Select the Camera Icon.

Move cursor into the work area. It takes the shape of a crosshair (+).

Position crosshair at top left of clip art and press SELECT key.

Move the crosshair diagonally across art. Notice a "cropping" box taking shape.



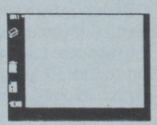
When box encloses art, press SELECT again. The boxed area is inversed for a moment (like a negative of a photograph) indicating a snapshot has been taken.

To save your photo, select Disk Icon, then the SAVE PHOTO option.

Insert data disk into your drive and assign a name to your photo. Press RETURN key and photo will be saved to disk. Return to Picture Menu by selecting Menu Icon.

MENU

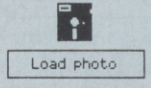
3 CREATE A PANEL



Select Copy Desk from Picture Menu and you will be brought to Copy Desk Work Area. Notice it's the same size as Photo Lab Work Area, but the first icon at the top left is FONT. (Meaning TYPE STYLE)

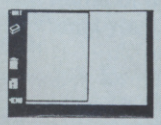
In this area, you'll combine the photo you've saved with the text you'll write. The result is called a PANEL.

To get the photo you just created, insert your data disk into the proper drive. Select Disk Icon, then LOAD PHOTO option.



A list of all photos you've saved will be displayed. Move cursor bar onto the one you want and press SELECT key.

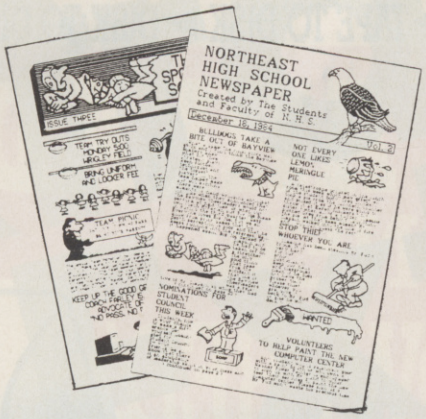
Return to Copy Desk Work Area with a box the same size as the outline of your photo. Position box where you want the photo and press SELECT key. The box will be replaced by your photo.



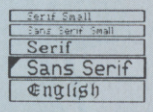
This guide is intended to give you a quick reference to what you can do in The Newsroom.

You have access to six areas of activity highlighted here. In each area we have presented the main points of how to go about creating your newspaper.

Creating an entire newspaper does take a lot of thought and planning, but if you follow these steps, you can quickly overview the procedures and print out a banner, photo, panel or whatever you wish to get some immediate feedback. Try it and you'll soon find how easy it is to create newspapers as simple or sophisticated as you choose.



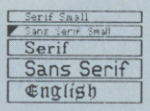
3 *continued*



To enter a headline, select Font Icon and a list of five fonts will be displayed. Select large SANS SERIF.

You'll be returned to Copy Desk Work Area with a text cursor the size of the font. Your starting point is automatically selected. Simply begin typing.

That is your headline.

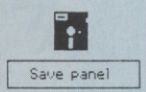


Now select Font Icon again and choose SANS SERIF SMALL.

Move the cursor to your panel and press RETURN key.

Cursor will go to the next line and you can begin entering your body text.

When panel is full of text, save it by selecting Disk Icon, then the SAVE PANEL Option.



Insert data disk into your drive and assign a name to your panel. Press RETURN key and your panel will be saved to disk.

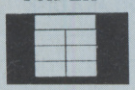
Continue to create all six panels the same way. We suggest that you create all photos first, then bring them in one by one as you are creating the appropriate panel.

If you would like to get some immediate feedback and print out the panel you have just created, select PRESS in the Picture Menu and follow the instructions to PRINT A PANEL.

Return to Picture Menu by selecting Menu Icon.

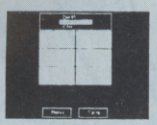
MENU

4 LAYOUT YOUR PAPER



Select Layout Area from Picture Menu. Next, select LAYOUT PAGE WITH BANNER option. Then, select the option LETTER SIZE 8½" × 11".

Insert data disk holding all BANNERS, PHOTOS, & PANELS that you have created.



Move cursor to Banner shape and press SELECT key.

The program will automatically read the names of all Banners that you have stored on that data disk.

Scroll through the list until you find the name you want to assign to this Banner. Then press SELECT key.

Repeat the process for all six Panel areas. One by one, assign names of Panels that you have created to these specific areas.

Once every space has a name assigned to it, you'll save the entire paper to disk. Select SAVE

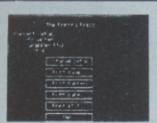
at the bottom of the screen.

You will be asked to name & save this paper. We suggest you save it on the same data disk. It will eliminate a lot of disk swapping.

Return to Picture Menu by selecting Menu Icon.

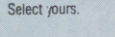
MENU

5 GO TO THE PRESS AND PRINT IT OUT!



Select Press Area from Picture Menu and you will be brought to the Press Work Area.

First make sure the program is set up for the exact printer you have. If not, select



CHANGE SET UP for a list of printers The Newsroom works on. Select yours.

Next, the program will prompt you to determine exactly what you want to print. Select PRINT PAGE Option. At this point, you will be asked to insert your data disk.

Next thing you know, the presses will be rolling.

6 IF YOU HAVE A MODEM, SEND YOUR NEWS

Select Wire Service from Picture Menu and you will be brought to the Wire Service Work Area. As in the Press, be sure you have set up the Wire Service for your particular modem.

The program will prompt you with specific questions. Once answered, you will be able to send portions of, or whole pages to your friends who also have The Newsroom and a modem.

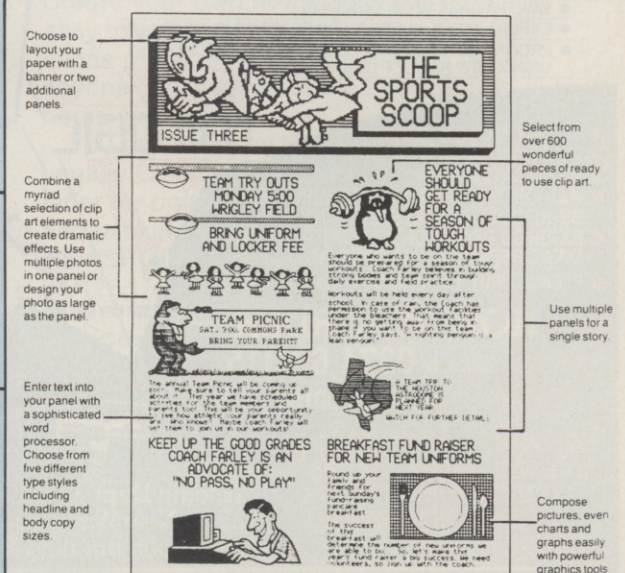
QUICK REFERENCE TIPS FOR ICONS:

The power of THE NEWSROOM is so easy to access because of the ICONS, or small pictures on the left side of each Work Area. Icons are found in the Banner, Photo Lab and Copy Desk Work Areas.

To make it easy for you to reference which ICON does what, use this guide:

ICON	BANNER	PHOTO LAB	COPY DESK
picture	Select from the library of clip art.	Select from the library of clip art.	
flip	Flip pieces of clip art.	Flip pieces of clip art.	
crayon	Produces the Graphic Tools Menu.	Produces the Graphic Tools Menu.	
magnifying glass	Zoom in on a portion of the screen for detail editing.	Zoom in on a portion of the screen for detail editing.	
OOPS oops	Undo what you just did.	Undo what you just did.	Undo what you just did.
FONT font			Select a font.
eraser			Erases all text from Work Area. (Double Select)
garbage can	Clears the Work Area. (Double Select)	Clears the Work Area. (Double Select)	Clears the Work Area of text & photos. (Double Select)
camera		Define and crop a photo.	
disk	Load or save a banner.	Load or save a photo.	Load photos or load or save panels.
MENU menu	Return to The Newsroom Picture Menu.	Return to The Newsroom Picture Menu.	Return to The Newsroom Picture Menu.

Double Select is an added safety precaution for you. To insure that you don't wipe out anything by accident, those icons must be selected twice.



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ADVANCED C128 GRAPHICS AND SOUND PROGRAMMING

High class programming on the C128 may not be as hard as you imagine – so Bob Collyer discovers.

When Commodore were developing the successor to the C64 they gave us a really powerful 8 bit machine in the shape of the C128. The full potential of this sophisticated machine is still being uncovered by programmers. This book brings you some really great C128 graphics and sound programming techniques. It is packed with clear explanations and obsessively commented programs. The programs are written in Basic 7.0 and 6502 assembly language.

The book concentrates on sight and sound and describes these senses as two of the widest channels into the human heart and mind.

This is not an ordinary programming book. It is for a slightly different kind of programmer working on a different kind of hardware/software system and programming a different kind of user interface. This programming relies heavily on graphics and sound techniques to open a broad band of communication with computer users.

Computer hardware is getting more powerful all the time, as are the built-in systems software and the specific applications programs – all working towards the goal of creating cybernetic tools that normal human beings can use. Machines like the Amiga, Macintosh, Atari ST etc. are leading the trend. They all have one thing in common . . . they all cost too much for the average user. The C128 is relatively cheap, yet has the hardware muscle to pull off a lot of modern tricks. All it needs is a little smart software magic to bring its powers to light. There are over 400 pages contained within the covers of this book crammed with many examples of software magic to enlighten the minds of any programmer, however competent the programmer may be.

Books that teach this new style of programming are more difficult to organise. The programs that get these machines dancing are not short and sweet. The interactions with the hardware and systems software are intricate. Even brief examples are not brief anymore. The growing sophistication of the systems and the programmer's demands for more information that is better organised, with a sweep that goes from grand overview to tiny details – information that gives you a pile of useful tools. This book is successful in giving you the information and providing you the tools.

"the 80 column graphics routines he supplies are faster than the ROM's 40 column routines"

The goal is to get you moving around the C128 system, able to solve any sound or graphics programming challenge that arises. Stealing from the more advanced graduate schools, the author, Stan Krute, has used a project-oriented, case study method, touching on both theoretical and practical issues. The book contains two major programming projects. These have each been divided into eight sections. Each section forms a chapter in the book. (I said books of this nature were difficult to organise . . . but logically this seems to be the only sensible way to lay out such a vast array of information.)

A project's first section discusses its Human Interface. This section tells about the project's programs' interactions with the C128 hardware and ROMs. Some of this material clarifies information available elsewhere. Much of it is new, information that the author has dug out by playing with the C128 system.

Commodore is known for the byzantine nature of its systems, and the C128 does not break that trend. What the author does is to show you how to dance around the C128, tapping on the ROM stuff, jitter-bugging on the good hardware stuff, pirouetting over the muck.

The third section for each project is called Program Notes. That is where the author discusses the more important structural features of the project's programs. he also points out some of the more interesting language usages.

Fourth in each project's array of tools is a section called Stretching. This is where the author suggests things that you can do to extend the project to suit your own particular program. For example, though the 80 column graphics routines he supplies are faster than the ROM's 40 column routines, there is still room for a two or four times speed optimisation. Therefore in that project's Stretching section, he lays out suggestions for speedup techniques.

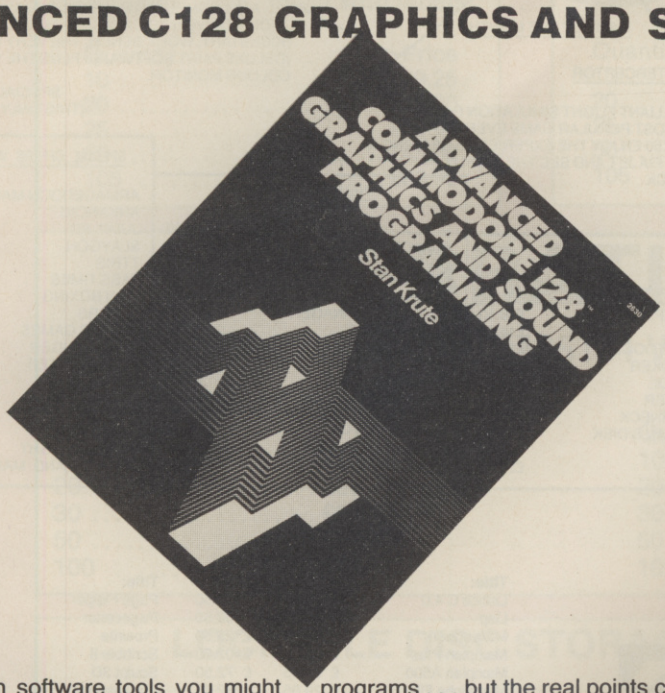
Fifth in each project comes a section of Calling Structure Diagrams. These are flowchart type pictures that show the architecture of the project's programs.

The sixth project section is called Subroutine Line Starts. Each routine in a program is listed with the line in the source code where it begins. This is very helpful in finding routines that are referred to in other sections.

Seventh is a section called Selected Algorithms. Usig a C/Pascal-like pseudocode, these algorithms show the workhorse intelligence of the project's programs, unmarred by the realities of BASIC 7.0 or 6502 assembly language. There is some interesting code here, including an Amiga-like interrupt-driven cursor.

Finally, each project closes with its program source code. There is a hell of a lot of it! It is probably the most heavily commented code you will ever come across! There is so much code and so many comments – but it is highly modular

ADVANCED C128 GRAPHICS AND SOUND PROGRAMMING



and filled with software tools you might find useful in other contexts.

So, that is the layout of the book! You can profit from it without running the programs . . . but the real points can only be best appreciated if the programs can be run and played with a few modifications. Typing in the code can be a really long and exhausting job over 200 pages of code. To do this I recommend that you use a very good assembler such as Merlin 128 (reviewed in the May issue of CCI). However, if you can spare a bit more cash then all the programs are available from an address at the back of the book.

If you are into advancing your programming techniques, then this book can save you time and money. Sample exercises with ready to run programs, along with a Sound and Music Lab that uses a point and click interface. Graphics routines for locating points on a high resolution screen, drawing lines and simple polygons, also pattern painting, these are just a few of the many useful routines contained in this book. I compliment Stan Krute for giving us all his knowledge of the inner workings of the C128.

The book is available from the publishers: John Wiley & Sons Ltd, 1 Oldlands Way, Bognor Regis, West Sussex PO22 9SA. Just published . . . price £12.40. Or through your local bookshop.

B.C.

"To Sail Beyond The Sunset"

Robert A. Heinlein (Michael Joseph £11.95)

Unless there are any undiscovered manuscripts around 'To Sail Beyond The Sunset' will be Robert A. Heinlein's last published book for he died in May of this year, in California, at the age of eighty.

Heinlein was one of the truly great masters of contemporary SF and his novels are all, almost without exception, perfect examples of what should be the aim of every writer of the genre: well-plotted stories, peopled with believable characters and, above all, tales that hold the reader's interest from beginning to end.

'To Sail Beyond The Sunset' is Heinlein at his best. Its rather unwieldy sub-title is 'The Lives & Loves Of Maureen Johnson. Being the Memoirs of a Somewhat Irregular Lady' and that is just what it is.

Bewildered on awakening in an unfamiliar room in a strange hotel, Maureen is even more surprised to find that sharing her bed are a man and a cat. Pixel, the cat, she is used to, the man is an uninvited guest. And not only is he a stranger – he's a corpse. Thus begins one of Heinlein's most intriguing, racy and outspoken tales.

Maureen is arrested and, while in jail awaiting trial, reminisces about her life from childhood up to her present predicament.

Robert Heinlein has put into his last novel more of his own story than ever before. I'm sure that if for 'Maureen Jones' you substitute 'Robert Heinlein', you will find this book is a part autobiographical/part fictional account of the author's own long life.

There are major differences – apart, of course, from the fact that the narrator is a woman. Maureen belongs to the 'Howard Foundation', a group of people dedicated to ensuring the longevity of its members. This they do by seeing that all the founders and every potential member are possessed of four living grandparents on joining and that members marry only other Foundation appointees; which is why, at the beginning of the story, Maureen is approximately one hundred and twenty years old, although she looks no more than forty.

Uninhibited, to say the least, is the word for Maureen. In her long life – the second part of which takes place after she is 'rejuvenated' – she marries three times and has innumerable lovers. One of her husbands is also one of her many sons, who was also her lover on another time 'line'. Complicated? It certainly is but it DOES all make sense eventually, thanks to Heinlein's masterly skill.

Occasionally one can almost hear the author speaking through Maureen. Thus she is given to expressing her views on life, love and the pursuit of happiness in the way it is obvious he must have done or thought. Although whether her views on incest and adultery are really his or are part of what he envisaged as Maureen's independent free spirit are another matter.

Included in the story are characters from other Heinlein novels. So we have Pixel from 'The Cat Who Walked Through Walls', Lazarus Long from 'Methuselah's Children' and 'Time Enough For Love' and computer Mycroft Holmes IV from 'The Moon Is A Harsh Mistress'. It is almost like old home week for Heinlein people.

Incidentally, Jubal Hershaw who also appears in 'Sunset' was in another famous Heinlein story – 'Stranger In A Strange Land'. That book was about an American president whose wife consulted astrologers before letting him make any important decisions. Sound familiar?

Science fiction will be the poorer for the loss of one of its most skilful and inventive writers. The title of this, his last book is taken from Tennyson's 'Ulysses'. Robert A. Heinlein has now sailed beyond the sunset and like Ulysses gone 'to seek another world', nevertheless what he has left behind is a very worthy memorial to his unique talent.

D.M.

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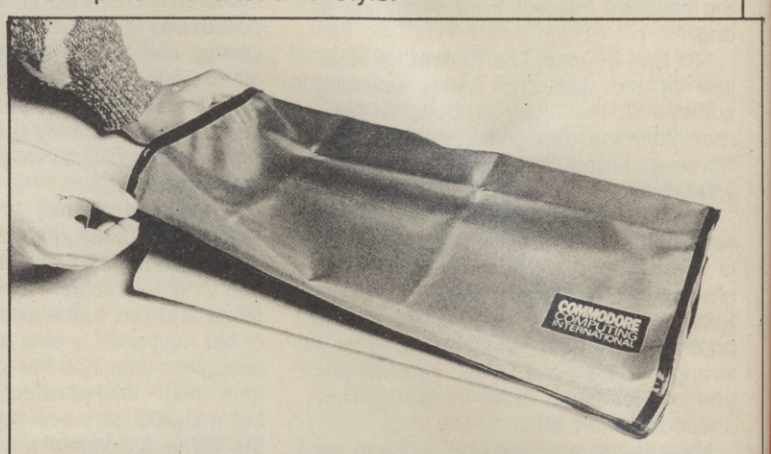

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Does the prospect of real-time digitising grab you? Peter Lee focuses on some exciting new hardware from SunRize Industries.

The growing appeal of Video digitisers for home enthusiasts must have as much to do with their fun factor as their more serious applications. They may make your desktop publishing output look like it is hot off the Fleet Street presses by providing life-like illustrations but they also contain scope for plenty of enjoyment in 'just for the fun of it' artwork or animation.

If a picture is worth a thousand words, imagine the impact of actually displaying a photographic illustration on the computer monitor, enhancing it, or slotting it into your latest newsletter before printing out . . .

Digisiters allow you to capture into memory images from a video camera, video cassette recorders (VCRs) or even from off-air broadcasts. From then on, it is up to you what you do with them. They behave just like screens saved from art programs and can be drawn on or displayed in exactly the same manner.

Claiming to be 'state-of-the-art', the SunRize Vision digitiser comes as an Amiga-coloured unit the size and thickness of a hardback novel. At the rear there is an output socket which connects via a standard cable (not supplied) to the Amiga printer port, a 9-pin socket for the planned colour splitter to enable RGB signals to be digitised separately, a standard phono-type socket for the incoming video signal and, on the front, two knobs which control contrast and brightness.

The digitiser contains its own 64K of onboard RAM and works from a 12 volts transformer, which thankfully is supplied. It probably goes without saying that you have to provide your own camera. Completing the package are a set of 3 colour filters, a disk containing the digitising software and a flimsy manual which could be better. The filters are there to alow you to digitise colour pictures with a video camera (b/w or colour); All scans are displayed in black and white, so in order to enjoy colourful screens you have to make three separate monochrome scans of your original, holding one of the red, green and blue filters in front of the lens in turn. The colour picture is then built up by combining these three frames in either 32 colour or HAM mode. Low-tech – but workable . . .

As yet only black and white images, using 16 grey scales, can be captured from a video recorder but work is underway to provide an RGB splitter which will allow full-colour grabs from suitable sources; something which will really be exciting.

> ***'It is blindingly fast. Interlace pictures take all of 1/30th of a second!'***

Amazingly, it takes only 1/60th of a second for Perfect Vision to scan a frame. This does not mean you can watch the Olympics in digitised realtime, because only two frames can be grabbed per second. But it is blindingly fast. Interlace pictures take all of 1/30th of a second!

Regrettably, the immediate release version uses the NTSC display, cropping around 4 cm at the bottom of the screen. This used to be a common fault of most US software in the early days but really there is no excuse for not providing

European users with PAL versions today. This means at the present that you will lose the lower protion of any image and because there is no image centering control available through software, it is a problem you are stuck with until any PAL screen upgrades.'

The software contains several major features, the most potent being the multiple-frame grab. You can digitise sequences of frames (at two per second) into memory, specifying the number up to memory limits. Using an A1000 with 2.5 meg I was happily capturing upwards of 50 frames at a time. It is then easy to save either individual screens from the batch, or specified sequences with file-names being automatically generated and saved to disk.

VISION

You can flick through a sequence in memory, not in realtime but very quickly, using rewind or forward buttons, or simply by specifying a frame number. (A minor comlaint here – there is no number showing which frame is on screen, so you have to memorise the numbers you are interested in, counting up from the starting frame). It therefore becomes very easy to store sequences of images and then use an animation package to play them back. Unfortunately SunRize do not supply a realtime projector utility,

'The digitiser works so fast it can even manage to capture a still while the VCR is fast searching!'

which is an irritating shortcoming considering that sequential digitising is the product's main attribute. But I found the excellent Director package (which we reviewed in an earlier issue) came into its own for flicking instantly through 20 or so sequential images.

When capturing files for animation I found it best to make two passes of the scene and then cut in frames which perhaps were not in the first batch, enabling smoother motion. Sequential frame grabs only work in black and white because of the three filter restriction on digitising colour scenes but they are a marvellous attribute. Even using videotape recorded at half speed near-perfect 16 tone grabs were obtained and the digitiser works so fast it can even manage to capture a still while the VCR is fast searching!

I found it necessary to have the VCR hooked up to a TV as well as the digitiser to make it easier to see exactly which scene was playing; the normal Perfect Vision display can fill the screen with the latest grab, or you can make the images a quarter size. However when you move to the multiple frame grab the display is not updated so you tend to lose track of what is being shown – hence the need for a TV screen showing the VCR output.

Colour work tends to be less predictable than simple, crisp black and white but if you need it, Perfect Vision provides adequate results. Getting the brightness and contrast right is critical here otherwise your screen looks like it has been photographed through splodges of mud!

Grabbing the 3 colour separations is very friendly and fast, allowing you either instant capture, or six seconds before the scan so you can fumble with the filters.

Once each of the colour components are captured in the buffer you may display the image in either 32 colour mode or HAM and then have the option of creating a pseudo-overscan screen – which until there is a PAL display version available is really of little interest.

Red, green and blue colour values for a particular frame can be edited from a control sub-menu, allowing fine-tuning of the overall look and there are software adjusters for brightness and contrast. A further option allows full control over each individual colour. Setting the brightness and contrast controls on the digitiser's front panel is a mixed blessing. It takes quite a while and the gentlest of adjustments to initially configure the image.

The program itself contains a small set of enhancement features. These allow you to perform an edge detection scan on the displayed image, giving contour-map type results. There is an edge sharpner and an option to blur a picture by averaging out the tone values of adjacent pixels and the ability to convert the frame to black and white. Any serious manipulation of IFF-saved files, though, will need work from the likes of Pixmate or Butcher II.

Files may also be saved in the RAW format which among other things allows them to be re-loaded more easily from BASIC and a colour frame can be saved as it stands, or as a series of buffer dumps which can be loaded back into the program for further manipulation. Loading a previously-saved IFF-standard colour frame simply displays the screen but does not allow any work on it whatsoever. Useful for locking in that particular palette though.

CONCLUSION

You just have to examine the competition to realise what good value Perfect Vision is. Under £200 for a real-time digitiser is pretty aggressive pricing and the quality it offers is as good as I have seen anywhere. Sticking colour filters in front of a video camera is pretty primitive – but it works, with the rider that results are hit-and-miss and can take a while to get right. But where Perfect Vision does show its class is in sequential frame grabs. Anyone with an interest in animation should be thrilled at the prospect of 50 or so frames to flip through – provided they have the right third-party software to utilise this feature. Not coming with a lead is a let-down, as a printer cable can cost around £18 but the external power supply is included, which is good policy. Once the RGB splitter arrives this product will be unbeatable and even as it is now, it's a real attention grabber!

P.L.

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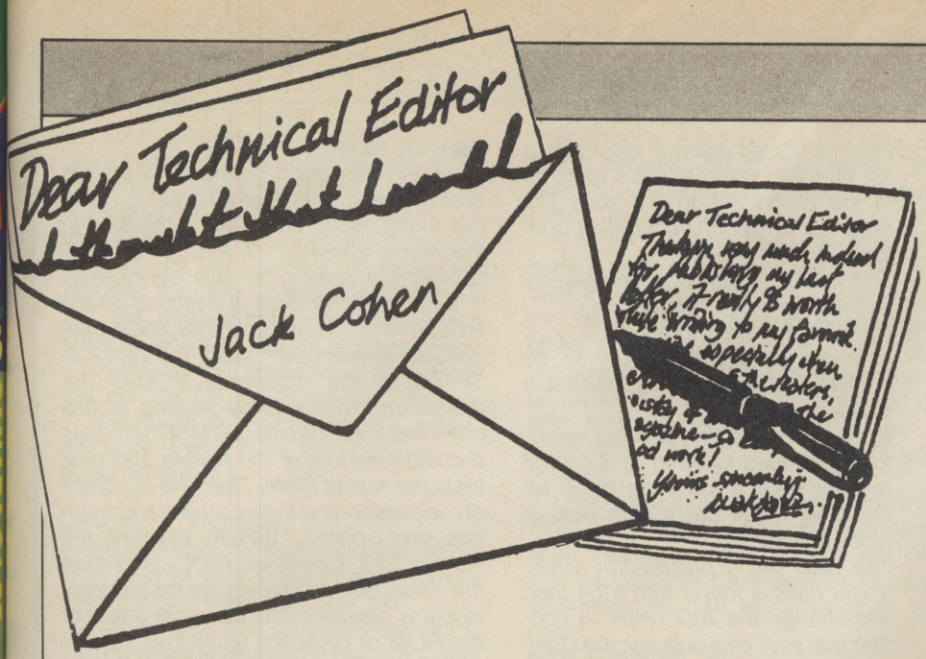


Dear Technical Editor,
Please can you spare a minute to help a real computer 'thickie'?

I have a Commodore 64, MPS801 printer and a very good database programme on tape. The database is very useful and it has a printer option but I find that, although the fields are entered in lower case with upper case initials, the printer will only print them out in upper case with the initials printed in graphics. A word processor which I use doesn't give me this trouble so why will the printer not perform the same for the database I wondered if the program could be altered in some way and I have listed it out, but, as I haven't a clue about programming, cannot do this myself. Please will you give me instructions, but they will have to be simple!! One day, if I keep at it perhaps I shall master this phenomenon!
Mrs. J. Pickup

Dear Mrs. Pickup
The power on default (i.e. at switchon) on the MPS 801 is graphics/uppercase. The word processor program that you use has been preprogrammed to change this to business mode (i.e. capitals/lowercase), this mode being natural to WP's.

Providing that the database you use does not reset devices attached to it after loading then you can use the following short program before loading the DB.

10 OPEN 7.4.7: REM printer secondary address to change to business mode.
20 PRINT#7
30 CLOSE 7
Type RUN and press RETURN (make sure printer and all devices are on.)

Dear Technical Editor,
Thanks for such a great mag! I really enjoy reading your news and reviews. Your mag is the most up to date I know! Help! I have a problem. Is it possible for me to get hold of a Hard Disk Drive for my C128?

If so then a) can I get a 40 megga? b) How much would it cost? c) Where from?

If you could give me the company or shop's name and address I would really be grateful!

Thanks again for your brill mag!
Quinton Davie,

Dear Quinton Davie,
Precision Software Ltd of Worcester Park in Surrey (01-330 7166) supply a hard disk for the 128 (and other machines).

Telephone them for full details.

Dear Technical Editor,
I have got a German C128 on which the caps lock key is changed to become the ASCII/DIN key. Do you know of a permanent way to remove the foreign character set and return the key to it's caps lock state. I have thought about opening the 128 up and locating the chip and just removing it but I'm not sure if that would have any adverse affect. I do have a software method of restoring the key but can't use that with commercial software.

My second question is for the address of a company that do a buffer for my STAR NL-10 through the serial port. I understand how a buffer works but was wondering, because it's through the serial port, if it will also act as a buffer for my disk drives. I know it probably seems obvious that it does but I thought I would check just in case.

Any help you can supply for these two questions would be most appreciated.
J.A. Younie

Dear J.A. Younie
To make a permanent change you will have to replace the character set ROM.

For a printer buffer try Brainboxes of Liverpool (051-220 2500).

The buffer will not be of use with disk drives since, because it is designed for use with printers, the data flow is only output and cannot be used in connection with the bidirectional flow of disk drives.

Dear Technical Editor,
Can you please help! As my old 1541 drive was getting old, I decided to buy a new 1541C drive, but am having problems working the two drives in a daisy chain formation. At the moment, I change one of the drives by software method, but I would like to incorporate a 8/9 switch in the older drive. Having looked at the 1541 handbook that comes with the drive, I am still unsure how to do this. Unfortunately, as you know, this handbook is written in 'Commodorespeak' which unless you have a degree in 'understanding Commodore manuals' or a crystal ball, is usually incomprehensible to the average human being – me included.

The handbook casually says – 'locate the device number Jumpers ... it's on the lefthand edge in the middle of the board' (their it's not mine). Unfortunately, having looked at the left hand edge in the middle of the board, I see nothing spectacular (what do these jumpers look like?) In a state of desperation, I cut one of the thin black leads running on the underside of the board, but all this succeeded in doing was, when turning on the drive, instead of powering up for a few seconds, it powered up ad infinitum. Fortunately, once I resoldered the wire up, it was working again. Can you please help me to locate the Jumpers in particular Jumper 1, as I don't want to do another Sweeny Todd Job on my disk drive with the wire cutters. Also, when I connect both drives up in a daisy chain, when I switch on the new drive first, it powers up forever – until I switch on the other drive or the computer (64). Is this a fault of the drive – it doesn't do this when plugged into the 64 on its own. I would be bery grateful of any help you can give.
Paul Matthews

Dear Paul Matthews,
Each jumper looks like a circle divided into two halves and separated by a short horizontal bar.

Jumper 1 *Jumper 2*

There are two jumpers and to change the device number to 9 cut jumper 1. To change to 10 cut jumper 2 only and to 11 cut both jumpers. To avoid electrical shock first unplug all leads before opening disk drive. If under warranty then it is invalidated by opening drive.

Dear Technical Editor,
Please help, I'm really desperate. I am writing a game (part Basic/part m/c), in which a 2×2 UDG is guided through a maze collecting items in order to escape at the end. I have worked out everything, I think, except a fast way of moving the character. How can I do this effectively, preferably with the character smooth-scrolling. (The screens do not scroll). If you could give me a short joystick con-

continued on next page

trolled routine I would be eternaly grateful. I have a Plus/4, and have a fairly good understanding of elementary machine code.
Simon Knight

Dear Simon Knight,
For speed use the kernal routine called PLOT residing at $FFF0 (65520 dec). This routine is used to Read/Set the X,Y cursor positions. The Y register contains the column that the cursor is in (0 – 39) and the X register contains the row (0 – 24).

A call to PLOT with the carrybit clear positions the cursor at the X,Y location held in the Y and X registers.

Here is an example of how to move the cursor to row 15, column 10.

```
LDX #$FF    :Load the X register
              with 15
LDY #$0A    :Load the Y register
              with 10
CLC         :Clear carrybit

JSR PLOT    :call routine
```

As you are mixing machine code and basic why not use the JOY(n) routine as defined in the PLUS 4 manual (supplied with machine).

n being either 1 or 2 for joystick port 1 or 2 respectively. This returns the position of the joystick.

Dear Technical Editor,
I have a slight problem with my Com 64, the sound is very weak and harsh, even with the volume up, and with it down you can hardly hear it at all. I obviously suspect the SID chip 6581, but I thought I had better ask yor advice before sending off for a replacement in case it might be in some other chip, so if you can advise me I would be VERY greatful.

I would also like to take this opportunity to say what a wonderful Mag Com: Computing International is I've tried them all but this is the only one that seems to please every one without spending too much time on any one subject and therefore upsetting anyone who doesn't happen to be interested in a certain subject.

Keep up the good work and 'Stay as Sweet as you Are'. Oh! by the way you needn't warn me about changing chips, as I used to work in I.C.L. so I'm quite conversant with the side of things, it's just that I don't know what goes on in the chips.
Jack Mullowney

Dear Jack Mullowney
You have not mentioned if your C64 has always had this problem so let's look at the problem two ways.

1. *Using the same program each time, if the volume has declined gradually over a period of use then suspect failure of the SID chip.*
2. *If you have had this problem most of the time since using sound and music.*
   a. *Have you used external input, and if so, then the signal to Pin 5 must be in the range 5-7 to 6-3 volts DC matched to the SID chip 100k ohm impedance.*
   The SID chip can be damaged by pushing in more input.
   b. *Using pulse waveforms.*
   In order for a pulse width to be audible it must be set in addition to a frequency.
   If a pulse wave and another waveform are used together in a control register then a low ratio gives an inaudible result but a high ratio is much louder.
   The ratio being pulsewidth: 4095
   If you have a friend with a 64 then interchange the SID chips to confirm that your chip is faulty. If so then replace.
   If his chip does not work in your machine then suspect programming or bad connection of other equipment to the sound channel.
   CCI is officially published the first day of the month.

Dear Technical Editor,
I am studying a course in GCSE Technology for two years, and am at present beginning the main project. I am thinking about using my Commodore 64 to control items around the home, using the User I/O port. But, the Commodore User Guide is not very useful. So, I would be grateful if you could tell me what each pin does (the diagram in the User Guide does not make any sense to me). I would also like to know how to control it from BASIC i.e. the POKE's that should be used.

I hope you'll answer the above questions.
Stuart Toll

Dear Stuart Toll,
CCI published a review of a book which deals in detail with computer home control programs (using 64 for example).

See C64 Micro Mansion review on page 112 of the July 88 issue.

Back issues available from CCI (for address see inside front cover).

Dear Technical Editor,
I am the proud owner of a Commodore 128 and a 1541 disk drive. Up till now the DD has been fine but now it has gone wrong. When switched on the DD red light stays on and doesn't go out no matter how long you leave it. It doesn't respond to any commands or boot any disks.

All this has happened recently and I am missing the use of my DD badly, so can you please help by possibly telling me what is wrong and how I can get it fixed as quickly as possible.

Keep up the good work and thanks for a great magazine.
S. Rowe

Dear S. Rowe,
Since the red light is permanently on, the probable cause is faulty ROM or RAM. For those readers who are interested in the inner workings of the 1541, I will explain the reason for this conclusion.

When the disk drive is switched on the RESET line is held low. The 6502 then does an indirect JMP using the vector at $FFFC to the routine at $EAAO (initialisation). The routine starting at this point first tests zero page RAM then does a checksum test of the ROMs and next tests the rest of RAM. Then the I/O chips are initialised and buffer tables and pointers are created. JSR to initialise the Floppy Disk Controller (FDC) and then the Serial Bus. In FDC mode the interrupt signal is disabled and therefore if any of the ROM or RAM are faulty then control will not be returned to the Interface Processor Mode for communication with the computer.

This is why there is no response to commands from the computer.

Try our Magenta pages for suitable repair firms or contact Microport who specialise in disk repairs (07783 6433).

Dear Technical Editor,
I have acquired a Xerox Diablo Hy Type II printer – Model 1345A – and would like to know if it is compatible with my C64.

If it is possible to get a printer interface for my printer, could you please inform me of an address to write to, also the approximate cost, as I am on a limited budget.

I have read your review in June's CCI Magazine but I am still at a loss as to who can supply an interface for this printer.
E. P. Cornish (Mrs)

Dear Mrs E. P. Cornish,
Contact York Electronic Research at The Fishergate Centre, 4 Fishergate, York YO1 4AB (0904 610722) for a suitable interface with maximum of about £35.00 but may be less. If necessary they will make one up specially for you.

Dear Technical Editor,
Can you please tell me where I can obtain a "manual" for a Vic 20 and a UHF modulator for the same.

I enclose a SAE for your convenience in replying. I really need full details of the beast. Thanking you for your help in this matter.
R.L.B. of Harlow

Dear R.L.B. of Harlow,
Get 'Programming the VIC' by R. C. West, 602 pages and the best ever source of info for the VIC 20. Still available from Biblios Ltd Distribution, Star Road, Partridge Green, near Horsham, West Sussex RH13 8LD.

To obtain a modulator for the VIC 20 first look at our Magenta pages and phone one of the spare parts advertisers listed therein. Also try Supersoft on 01-864 1166.

Dear Technical Editor,
In your last month's magazine, you advertised and recommend the "Okimate 20" colour printer.

I would be most grateful to you if you could advise me whether an interface is available for this machine, to enable it to be used with the Commodore 64? If not will the manufacturer be producing a suitable model for the 64 at a later date?

Could you also let me know the price of the ribbons for the "Okimate 20".

Thank you in anticipation of a reply. I am enclosing a SAE for your use.
S. T. Rumens

Dear S. T. Rumens,
There is not an interface available (at the time of writing) for the Okimate colour printer to be used with the C64.

I understand that the manufacturer is most unlikely to produce a suitable model for the C64.

The recommended retail price of the ribbons is £5.75 for black and £5.95 for any other colour.

Dear Technical Editor,
I am writing to help three people who wrote to you in April CCI. First of all, Mick Greaney and Dr L. Hall who had problems with printing graphics on their MPS 802 (1526) printer. GEOS has a driver just for your printer. It takes quite a while to print out a page but the end result is very good, well better than my MPS 803 which only has 60 dpi and chops off a quarter of a page, not to mention turning circles into ovals.

Now for a certain C. L. Chappell. You want true descenders for your MPS 803. Well if you liik up page 97 of April CCI you will find a chip for your printer which gives you that and Italics, Bold, and Single Pass Underlining. It also speeds it up, or so they claim. You might find it a little more expensive than Printer IV (£30) but it should take care of your problem.

I also have a query to make. I have the Final Cartridge III and am wondering what they're going to do with this Disk Link thingamedooba. I know it's for future extensions to disk but what does that mean?
Nick Grebneff
P.S. Use the Commodore compatible printer driver for the MPS 803 on GEOS. If you use the MPS 1000 like it says you will get an extra line feed between each row of print.
P.P.S. CCI is great. I buy it every month!

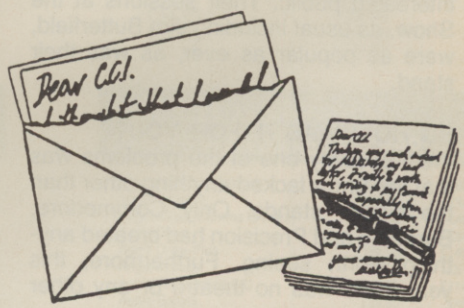
Dear Nick Grebneff,
Thanks Nick for your useful information based on our own experiences.

The reason for the slow printing is because the program has to use USER DEFINED CHARACTERS to simulate graphics.

As you say, it is slow but it is certainly better than nothing.

Regarding the chip for the MPS 803 which gives true descenders and was advertised elsewhere in the April CCI. These questions are answered before the contents of the issue to which it relates are known. The answer is to always read very carefully through all of CCI, especiallythe adverts. One of our advertisers may have the answer to your problem in the form of their product.

Regarding your own question about FC III. Disk link will probably be to enable FCIII to work with new types of C64 programs so that they can also be frozen and continued as can existing ones.



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THE COMMODORE SHOW '88 . . . HOW WAS IT FOR YOU? *continued*

For developers, especially for the Amiga, the Show could lead to good results. A new organisation, the Commodore Amiga Technical Support Group (CATS) had its first major meeting. About 100 people attended, somewhat, it seemed, suspicious of Commodore's intentions. The meeting was a useful beginning to what could be an important step toward helping developers and Commodore create a productive relationship – which has not always been the case in the past.

ICPUG has always shown an awareness of this situation and sometimes played a useful role as a bridge between Commodore, the developers and the interested public. Their sessions at the Show, as usual including Jim Butterfield, were as popular as ever, as was their stand.

SO HOW WAS IT FOR YOU?

Well, possibly one of the problems was that the Show lacked anything other than the simple stands. Only Commodore, Burocare and Precision had created anything worth seeing. Furthermore, this year there was no theatre or any other focal point of attraction to give the Show an extra dimension of excitement or interest.

While, certainly more by accident than design, Commodore set the tone of the Show but their cutting of the Amiga 500 price, and there was, coincidentally, a hiatus in the presentation of new products, the force and logic of the "Show" idea seems to be slipping away – which is especially unfortunate for the Amiga.

"The Commodore owner may well relish picking up bargains – and there is nothing wrong with that, but it is not enough"

The Commodore owner may well relish picking up bargains – and there is nothing wrong with that, but it is not enough. He can do that on a Saturday morning in a street market. The Commodore Show should provide more than a "mart". It should look better than, as someone described it, "a second-hand market". It should offer some imagination, some exciting picture of the present and possibilities for the future, not only cheap things from the recent past. Cut-price products are not all the Commodore Show is there for.

If the advantages of exciting, entertaining, informing and reinforcing the loyalty of Commodore owners and prospective owners are not to be wasted positive action should be taken to rescue the Show from its present dullness and lack of quality.

There is another Commodore Show planned for November. On this June's performance, it is very unlikely to attract more exciting exhibitors or encourage new products to arrive or be presented there. Visitors, possibly in smaller numbers, may well start to regard it as no more than a cut-price off-street market for cheap Christmas presents. That was not Commodore's image in its most brilliant times nor the way they would be advised to let the world see them for a successful Amiga starred future.

Viva Commodore!

If the Commodore Show was something of a let down, perhaps it should have taken a few lessons from another more private but greatly more successful Commodore Show. This one took place in Mexico but, surprisingly, it was entirely in English. It wasn't open to a very large public. In fact, it was very exclusive indeed, attended by only 46 people, everyone of whom if asked the question 'How was it for you?' would certainly have replied 'Terrific!'

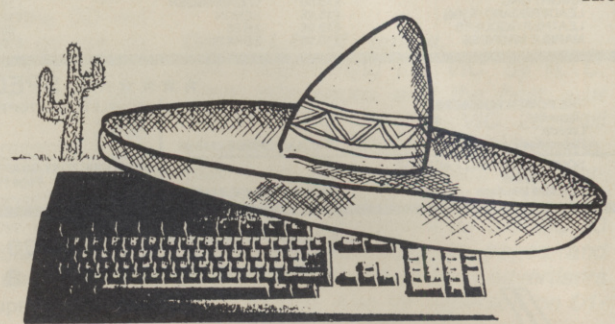
This 'terrific' Commodore Show was staged by Commodore UK and their distribution, Lightning as a mark of gratitude to dealers who had achieved high sales – and provided excellent service to Amiga buyers – in recent months.

Some of the top Commodore dealers in the country with their wives and husbands were invited to a week's holiday in the best hotels in Mexico City and Acapulco, accompanied by Kristian Andersen, European Director of Commodore, two top CBM UK executives, Steve Franklin, MD and David Pleasance, National Consumer Sales Manager and Loretta Cohen, Lightning's vivacious and popular Boss.

When Commodore do something, they clearly do it well these days. . . Every detail was planned. From the Margarita cocktails handed round by whitecoated waiters in the lounge of the Camino Real, Mexico City's finest hotel when the tired travellers arrived after a 14 hour flight from London to the sumptuously arranged open-air barbarcue fiesta in a private square in the Acapulco Princess Hotel, one of the ten best in the world; the whole trip was created with the idea of making it memorable and exciting. It certainly succeeded. It is not unusual, of course, for organisations such as Commodore and Lightning to reward their best customers with holidays or other promotional goodies. Such activities are intended to reinforce their commercial loyalty and efficiency. It does have a spinoff for the consumer too. Most of the dealers who are successful in the computer field do not only sell computers but also peripherals and software. They become successful because they satisfy their customers and keep *their* loyalty. That means that when Commodore or its distributors like Lightning, play host in such a generous manner, what they are doing is helping the ordinary Commodore consumer to continue to get the best service – which can't be a bad way of putting back profits that are made from those same consumers.

Mexico is, as someone has said, not so much a place as a state of mind. Whether it was smog-troubled Mexico City, with its 18 million people and traffic that makes a demolition derby look tame or the stunningly beautiful Acapulco with its luxurious cruises round the bay on the largest trimaran in the world and more margaritas watching the famous divers plunge 160 feet into a shallow sea, Commodore and Lightning created in everyone an unforgettable impression of quality and attention to detail. Not a bad philosophy for a computer business. . . Now in Mexico, that was a Commodore Show . . .

A.J.



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All you have to do is answer the questions and a tie-breaker sentence and the printer and Geos are yours (or someone else's of course!)

1. What does GEOS stand for?
2. Name six products in the GEOS range.
3. Which of the range is a spreadsheet?
4. What does WYSIWYG stand for?
5. What makes the GEOS series unique in its operation?

I would like a Star LC10C colour printer and Geos because (no more than 12 words please)

.....

.....

Answers on a postcard please by September 15th 1988 to:

Geos/CCI Competition
CCI
40 Bowling Green Lane
LONDON
EC1R 0NE

I already have Geos YES ( )
NO ( )

Competitions WINNERS

Winners of Horgan's Crazy Out Run T-Shirt competition

M. Jones
Leics

J. Davey
Devon

S. Smith
Cambridge

D. Morris
London

L. Jacob
Sussex

P. Taylor
London

A. Moss
Beds

S. McCarthy
Tyne & Wear

C. Small
Essex

G. Greaves
Surrey

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B. Wilmot
Herts

S. Bolt
Tyne & Wear

H. Smith
London

D. Gibbons
N. Ireland

E. Morgan
Leics

D. Copeland
Cheshire

N. Myles
Bournemouth

Winner of Amiga 500 – the "I'd love an Amiga" competition

K. Dunleavy
Ireland

Correct answers:
1. Steve Franklin
2. Eleven
3. Simon Nicol
4. Nick
5. Paul Byrne
6. £7.99
7. Word Writer (£49.95)
8. Jack Cohen
9. "Solely 64 and More"
10. Mind Walker
11. Strategic Defence Initiative
12. Eleven
13. £29.99
14. £16.50
15. New York
16. Twelve
17. Seven
18. Two and Twenty
19. Origin Systems
20. Hi Voltage

Winner of "How to get the most out of our computer" competition

T. Hill
Glos

M. Jones
Leics

M. Shaw
Staffs

D. Connor
Liverpool

A. Swinburne
S. Glam

M. Darlington
Telford

A. Traser
Staffs

G. Sykes
Manchester

P. Steel
Beds

J. Gardiner
Surrey

J. Tyrell
Liverpool

A. Bowden
Takeley

R. Walker
Dudley

R. Palmer
Stafford

C. Garbutt
Basildon

M. Tipple
Tyne & Wear

J. Meardon
Shrewsbury

D. Jones
Avon

Winners of Alternative Games competition

Winner
J. Wiffen
Co. Durham

5 Runners-up
P. McNally
Merseyside

L. Dybwad
Norway

M. Smith
London

A. Bowden
Bishop's Stortford

J. Davey
Torquay

P. Beech
W. Midlands

M. Mazzilli
Italy

The next 10 runners-up
F. Breien
Norway

A. Simmonds
Sussex

D. Mitchell
Kent

J. Consadine
N. Humberside

R. Smart
Lichfield

M. Jones
Leics

M. Tate
Hants

M. Davies
Wales

Winners of Great Californian Rad Pack competition

Winner
R. Ramsden
Bradford

Runners-up
C. Whitehead
Merseyside

K. Gabriel
W. Yorkshire

G. Robertson
Merseyside

D. Pauley
Devon

C. Maxwell
London

Winners of Ocean's Platoon competition

Winner
A. Saunders
Lancs

Runners-up
A. Miani
Middlesex

V. Laine
Finland

P. Roberts
London

A. Diano
Italy

C. Bayliss
Wiltshire

D. Richardson-Chapple
London

S. O'Neill
Ireland

J. Johnson
Australia

G. Bayliss
Fife

K. Moon

F. Bissett
London

M. O'Flaherty
Ireland

T. Griffin
Ireland

R. Walker
W. Midlands

S. Povey
Clwyd

A. Newman
London

O. Carr
London

S. Alston
South Africa

D. Bissett
London

N. Wright
Australia

Winners of US Gold Challenge competition

Winner
D. Norman
London

Runners-up
A. Diano
Italy

S. Farmer
Surrey

W. Coates
Northumberland

S. Crane
Essex

J. Archer
Newcastle-u-Tyne

T. Cobbe
Leeds

B. Mooney
Tyne & Wear

P. Natisupalak
Italy

D. Connor
Liverpool

D. Hiscock
Essex

M. Tipple
Tyne & Wear

N. Campbell
Dumbarton

J. Catesby
Herts

J. Taylor
Huddersfield

D. Lowen
London

L. Wilmot
Tyne & Wear

H. Holmdahl
Sweden

D. Jackson
Barnsley

J. Aldersea
Staffs

ROBTEK'S JEWEL OF A COMP.

Robtek's recent competition with prizes of £5000 worth of diamonds was certainly a smash hit, with loads of eager diamond hunting entries from all over. Some of the lucky and skilful winners attended the Commodore Show to receive their prizes. Each got a diamond worth £1000 – with a certificate from Robtek to prove it. They were presented with the jewels by Robtek's MD, Robert Zysblatt. The competition was held to celebrate Robtek's rising Diamond Games label. It was launched in traditional champagne style by the stunning star publishing executive Sarah Jones of Comag. Winners, Steve Peace and George Malinowski, are seen here with Robert Zysblatt and Sarah.

George told CCI that he has been a Commodore owner since he acquired a PET in 1978 but he also bought a 64 in 1983. Steve only became an Amiga owner four months ago but has been reading CCI for some time before that. One since 1978 . . . one in the last few months . . . and both enjoy CCI. It just shows how varied CCI readers are. Our thanks to Robert Zysblatt, Robtek and the gorgeous Sarah for making it such a "sparkling" occasion!

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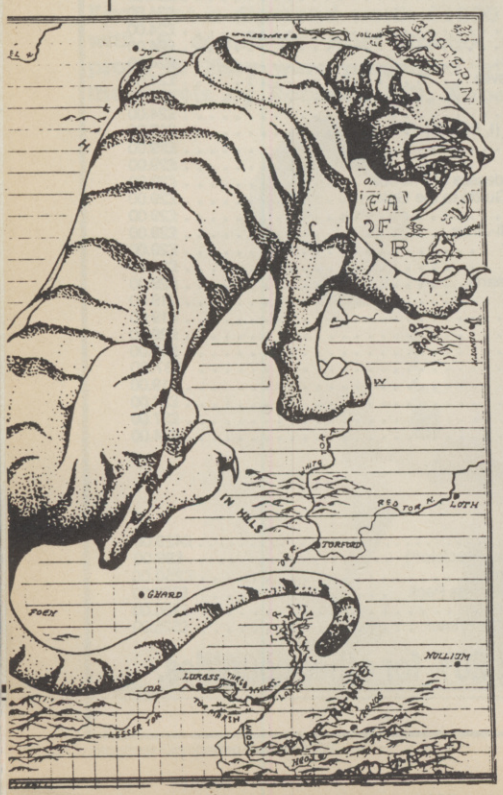
Play By Mail

Postal gaming is a rapidly expanding hobby. Over 100,000 people in the UK are actively involved in Play By Mail games (PBM) and it is predicted by the monitoring body, the Play By Mail Association (PBMA), this figure will increase by at least 25 per cent this year.

One of the major factors that backs up the PBMA's claims is the extensive publicity the hobby is now receiving in the general and computer press. Computer magazines are presenting PBM columns and the hobby is getting extensive coverage elsewhere too.

Interestingly over the past year, even without wide general publicity, the hobby's biggest influx of players has come from computer owners. Computer owners asking questions about postal gaming, so C.C.I. brings you a beginners guide to Play By Mail written by Wayne (no, he doesn't reveal another name) who is the chairman of PBMA.



Twelve years ago, the only postal game you could play was chess. In 1976 the situation changed when the Fantasy Role Playing (FRP) swept across the USA.

FRP then was a face- to face- game, where you and your friends assumed the identities of mythical persons. These could range from King Arthur to Dan Dare. You *Role Played* a character you created via a rulebook and you were put in various predicaments by a *Gamesmaster* (GM). The GM is a cross between a god and a storyteller, who leads your character into a fantastic world of adventure, danger, intrigue and excitement.

The aim of the game was to survive and enhance your character's abilities, which was done by the experience you underwent in your fictional travels. If your character was unfortunate enough to be killed during the course of one of the adventures, it was no major problem. You could create a new character from scratch and start all over again!

The major problem with FRP was that it required a group of people to meet at a certain place at a prearranged time. They would then have to spend at least a couple of hours playing the game. It was then the idea to play FRP games by post came about.

In the UK, the first professional PBM game was created in 1979 by KJC Games under the name of Crasimoff's World. In this game you played the part of a tribe of ten individuals, whose aim was to explore a mysterious planet and survive. The game was, and still is, very popular, with more than 1000 players traversing this mysterious continent, meeting the likes the of Krehorse, a savage hybrid of horse and tiger. However some people were not satisfied with CW and started up their own games.

In 1983 Sloth Enterprises released their excellent single character fantasy postal game, Saturnalia, which was set in a mythical world of dragons and magic. At this time, certain companies obtained the rights to run established games from the USA and released them to the UK public.

The now defunct Mitregames were prime instigators of PBM importation and they ran the immensely popular Midgard. In 1986 computer

moderated postal games then became the in thing. Computers, in some cases, worked up to 75 per cent faster than their human counterparts and could also run 24 hours a day, seven days a week. Profits could be maxdmised and expenses kept to a minimum. At the present time, the biggest selling PBM is KJC's It's A Crime' which has over 12,000 players and is totally computer moderated.

Since its inception, many PBM games and their companies have come and gone, but the foundations of the postal hobby have been firmly laid. KJC, Sloth Enterprises, Jade Games and Spellbinder Games are the biggest companies on the PBM scene at the moment. All have excellent pedigrees and have a substantial influence in the market.

Once you understand the rules you enter your team/character on the *Start up sheet.* This you photo copy, for subsequent reference, and then return to the PBM company. They will in turn enter your creation into their game and send you a reply that will contain detailed information of your starting position, rumours of incidents of interest, happenings of import plus any other additional information that is relevant.

You then either write down what you wish your creation to attempt or enter a series of figures that represent actions that a computer can understand. This is called completing a *turn.*

You send your turn to the PBM company and they will process the information. This will be done in one of two ways. If your GM is a human, he will use his imagination and secret knowledge of the game, plus various dice to determine what happens to your creation.

On the other hand, if the GM is a computer, your decisions are interpreted by various intricate programs and the information is then cross-referenced with the other players instructions to determine a result. The decisions are then sent back for you to analyse and repeat the turn process. Everytime you have a turn dealt with it costs you a sum of money. This can range from 0.50p to £5.00 per turn, but the norm is around the £2.00 mark.

You can drop out of a game you dislike anytime and request your money back whenever you wish. Furthermore, you *do not* require a computer to process turns. The reason why computer owners have latched onto PBM is because it is like an adventure game, but with an infinite amount of solutions and player interaction.

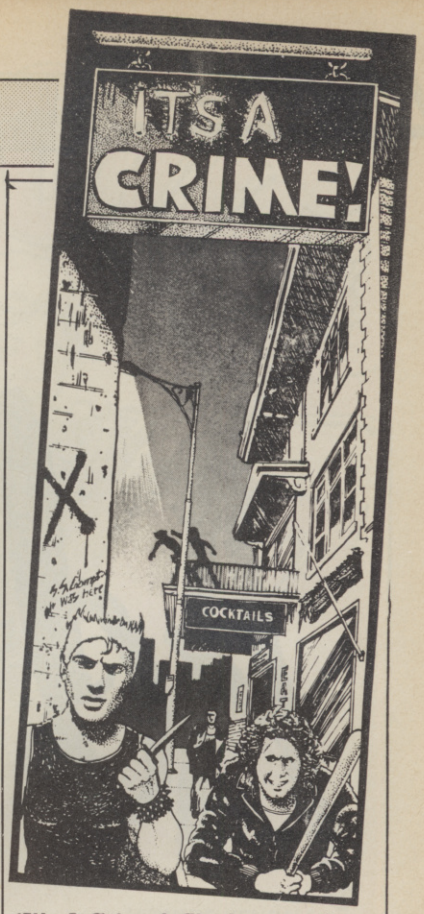
Through PBMs you get to meet other players' creations and through them the players themselves. Many a lasting friendship has been made via the postal hobby and some of these span continents. I even know a postal relationship, brought about by PBM, that ended the marriage!

Lack of space restricts me from going into much greater detail, but diplomacy, tactics, strategy and negotiation all have a place in PBM. Be prepared though to receive horrendous telephone bills and spend a lot of money on stamps!

If you are interested in getting involved in PBM, then feel free to write to one of the companies below, as they have kindly given CCI readers the chance to get involved in the hobby for just the cost of a stamp.

All you have to do is send them your name and address and you will receive all the start-up material, plus a varying amount of turns free of charge. Get involved and I can promise you a hobby that is as interesting as it is entertaining. Enjoy!

'Chronicals Of The Knights Of Avalon'. Free start up and four free turns. A game of swords and sorcery, where you have to explore and rule a mythical world of dragons, heroes and magicians. Totally computer moderated. *Contact Jade Games, PO Box 54, Southsea, Hants, PO4 0NA.*



'It's A Crime'. Start up pack and two turns free. You control a gang of street punks in a futuristic New York setting. Your aim is to lead them to bigger things and by investing in a life of crime, you attempt to become Godfather of the city. The only other thing stopping you is the other 450 players. Totally computer moderated, a very popular game. Not recommended for under 16s or those of high moral values. *Contact: KJC Games, PO Box 11, Cleveleys, Blackpool, Lancs, FY5 2UL.*

'Gameplan'. Free start up and two free turns. You become the manager of an existing famous American Football team for a seaon and your aim is to defeat your opponents and win the Superbowl. *Contact Sloth Enterprises, PO Box 82, Southampton, Hants, SO9 7FG.*

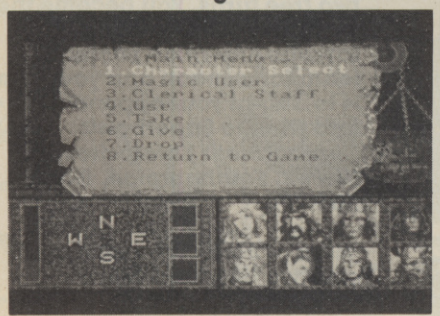
'Keys of Bled'. Free start up and two free turns. Your spaceship crashes onto a unexplored planet and you lead the survivors in a hostile world. *Contact Spellbinder Games, PO Box 60, Wath-Upon-Dane, Rotherham, South Yorkshire, S63, 7PR.*

'MageLords Of Dorm'. Free start up and two free turns. You are in control of a fantasy army, whose aim is to conquer the world, and appease your god at the same time. Mass fantasy combat on a grand scale. *Contact The Laboratory, 18 Ridge-Nether-Moor, Liden, Wilts.*

Adventure

COMMENT

In the software entertainment business a month is a long time. Games come and go. Some are "hot" for a while, then appear a few months later on compilation tapes and are then labelled as decidedly "cool". Arcade games do have a relatively short shelf life, and as such retailers have to be particularly choosy about which titles they order and in what quantities. Not so with adventure games; recent figures released show that an adventure will be purchased sometimes two or even three years after initial release. It is the thrill of tackling a Pandora's box

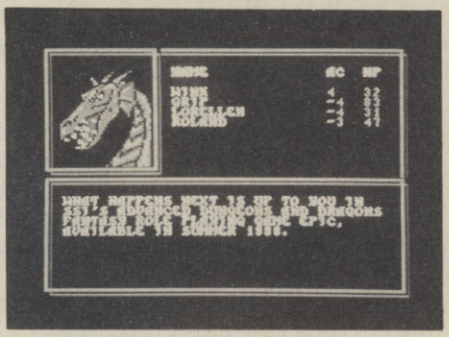


of puzzles and false paths that attracts us, not just a "passing fad arcade hit conversion" with which you can lose interest overnight. Proof of the pudding is the Ultima series, for which Origin is claiming 100,000 for Ultima I, 250,000 for III and 400,000 for IV worldwide, AND they claim copies are still being bought of each release. Such testimony adds fuel to the fire that in the long run an adventure is a much better investment than anything else.

In that vein, I visited Electronic Arts in deepest Langley and was made to feel most welcome. They showed me previews of the soon to be released Amiga version of Bards II (complete with some new songs to suit the Amiga's sound capability) and the 64 version of Bards III which is something else, I can tell you. There are a load of new Bard songs, the gameplay has been tweaked yet again to be faster still, an auto mapping facility has been added and you can save the game anywhere. On top of all this I was shown another role player again by Interplay (the Bard creators) called Wasteland and is set around a post-

nuclear war theme (see Adventure News). All this shows me that Electronic Arts are fully committed to releasing new and innovative role and adventure products as they see them as the right route for their future success.

Whilst we are talking about future commitment, I would like to report that SSI are nearing completion on their dual Advanced Dungeons and Dragons project. As you can see from the screen shots, one is a hack and slay arcade adventure (Heroes of the



Lance) and the other a traditional role player (Pools of Radiance), but both contain state of the art graphics that "break new ground" in coding technique. Jerry Howells, who is marketing manager for SSI over here, told me when we met recently in London that US Gold and SSI are committed to developing a range of products based around AD&D over the next FIVE years! US Gold hold the sub licence not only to develop

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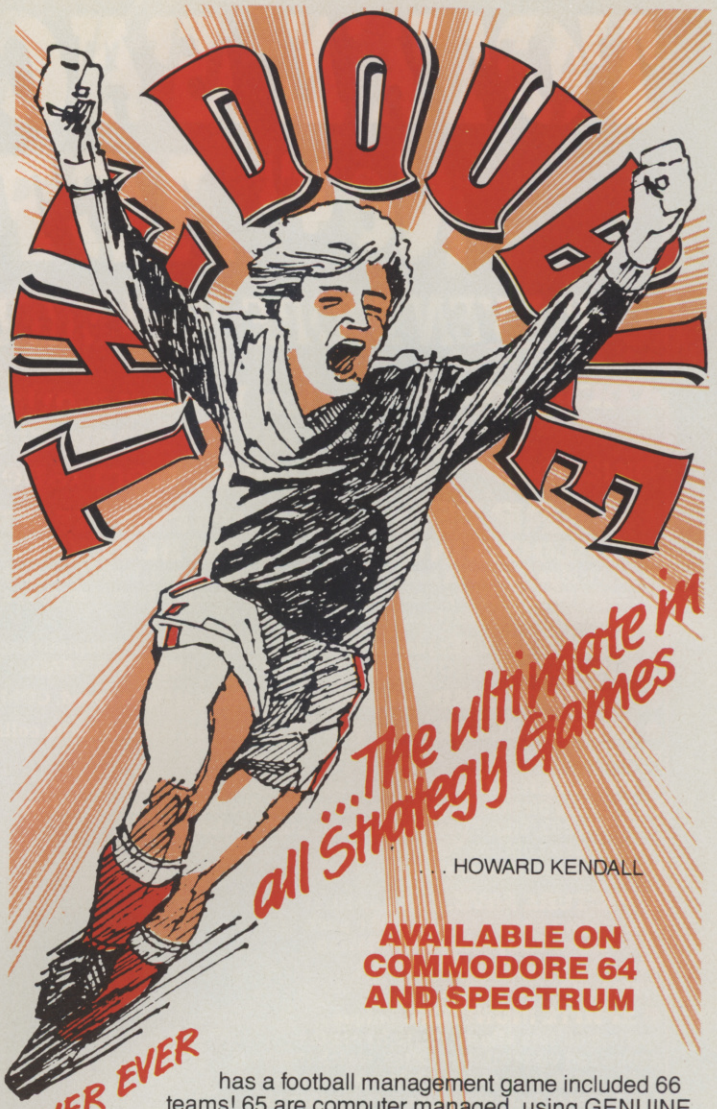

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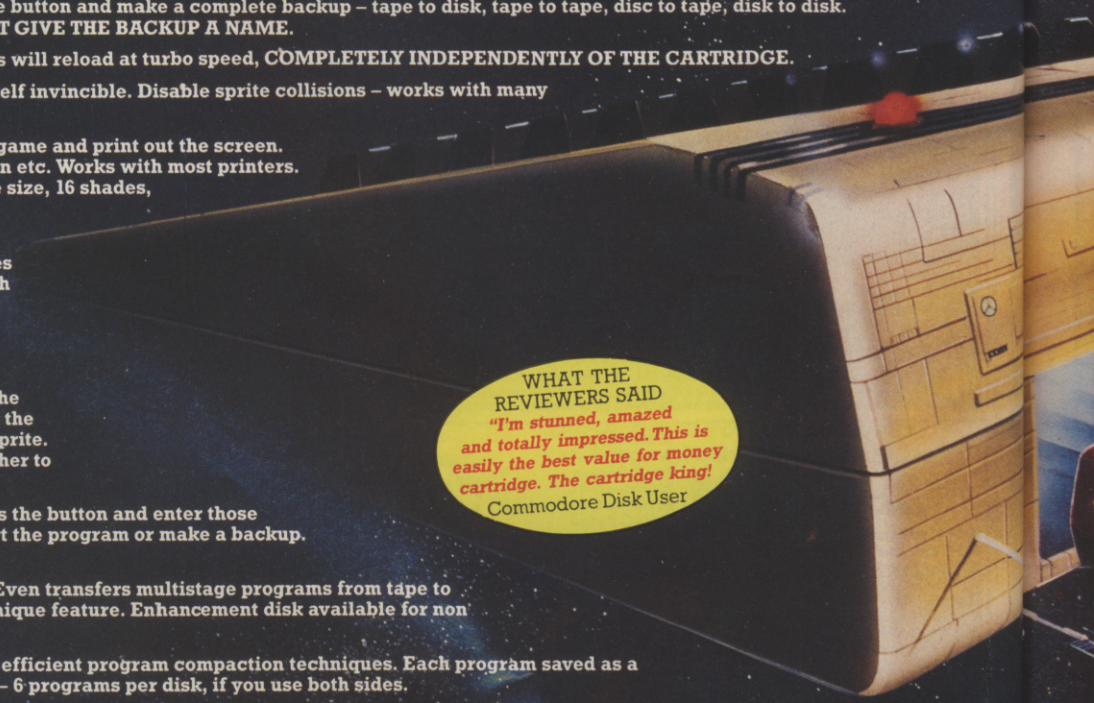

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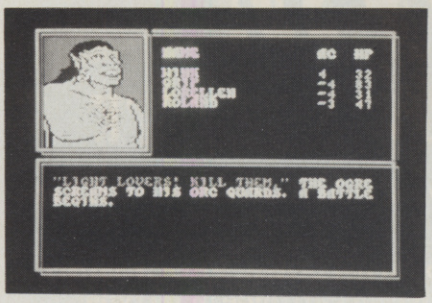
product but to market all associated AD&D projects. This is a very exciting development for all adventurers as it



heralds a new era in bringing serious game playing to this country. With the obvious interest shown in adventures by the major players now, along with the likes of Level Nine and Mag Scrolls shows me that computer adventuring has at last come of age, and proves of course what we knew all along . . . adventure is the *only* game in town.

ADVENTURE NEWS

RAINBIRD GETS SHARP

Legend Of The Sword is a new style adventure from Rainbird which crosses the boundary between role playing and standard text adventures. Programmed by Silicon Software, Legend of the Sword is apparently an authentic adventure which involves far more than just solving puzzles. There are over 300 individual cameo illustrations, animated icons, plenty of character interaction and a highly flexible interpreter which includes FIND and GOTO commands. The plot is the usual king sends for you to save the world after his army has been defeated by evil wizard and magic sword and shield has to be found to defeat him variety. However there is a difference, as there is an abundance of whimsical humour, we are informed, that is pure entertainment as you set forth with your motley band on your quest to seek out the mystical sword and shield. More info when we have it.

SSG SIGNS WITH EA

Australian strategy software house, Strategic Studies Group, who are highly thought of in SSI, have signed a European distribution deal with Electronic Arts and will kick off this month with the release of nine SSG titles at markedly lower prices than has up to now been possible. The titles are Carriers At War, Europe Ablaze, Battlefront, Battles In Normandy, Russia, American Civil War, Halls of Montezuma, Rommel, and Reach For The Stars. All these titles contain construction kits and graphics editors so the player can change scenarios at will. Prices will be £18.95 for the 64 versions.

STARFLEET I FROM EA

Once again showing their search for new strategy software is paying off, EA is releasing Interstel's Star Trek look alike Star Fleet, the first in the Star Fleet series. In the game you control one of 36 galactic heavy cruisers in an effort to stamp out invading Krellan and Zaldron warships. To master your galaxy, you must rescue starbases, capture and tow enemy vessels, lay minefields, search for intruders and repair damaged systems. Sounds a lot like the classic Trekkie game, we will see.

WASTELAND FROM INTERPLAY

A post nuclear epic has arrived from Bards Tale creators Interplay. The date is 2087 and World War III has come and gone. You live in a world of Biker gangs, religious maniacs, rabid criminals and mutant varmints, and that's just for starters! You are a Desert Ranger committed to cleaning up civilisation, and to survive, you need to amass an arsenal of weapons like pistols and machine guns, grenades and rockets. Your party can be split up and perform multiple tasks, and once a piece of equipment is destroyed it is destroyed for good. The characters develop real skills, not just attributes, and alliances can be made with people you meet. This sounds like a fascinating game, and in the short time I was shown it, has all the hallmarks of an Interplay classic.

PANDORA NEW FOR FIREBIRD

Life aboard a seventh generation space ship for an Intergalactic Salvage Dealer is not great shakes. You have been beamed aboard Pandora to discover what is wrong, after she has returned to Earth orbit 200 years after setting out on an artifact collection voyage. Some of the crew, like the Captain and Commander, have been killed, whilst others are still very much alive. What is the key to this mystery? You alone can find out, by clever character interaction and puzzle solving. It all sounds mysterious and strange and I want a copy NOW!!!

HILLSFAR – ROLE PLAYING OLYMPICS

In conjunction with the new Advanced Dungeons and Dragons project, SSI/US Gold are planning a fantasy version of Summer Games called Hillsfar. This will give you the chance to create a fantasy character and make it fight and compete in a number of "games" that test its skill and strength and dexterity. If you manage to survive, your champion character can then be included into your party in the Pools of Radiance role player. What a great idea!

MAGNETIC FISH

Life as a goldfish in a bowl can be pretty boring, just swimming around all day. In Mag Scrolls' latest adventure being written as we speak that is just what you are! Life is dull, that is until a tacky plastic castle appears in the bowl with you and you are then plunged into an adventure that scales new heights (yuk). A novel theme with quite a few red herrings I am sure! Under development, it should be with us in the autumn.

TELECOMSOFT SIGNS UP ICOM

Remember when I raved about Déjà Vu and Uninvited and Shadowgate? Well Rainbird have gazumped Mirrorsoft and snapped up Icom's next six releases of which one, I am glad to say, will be Déjà Vu II.

THE BARDS TALE SOLUTION CONTINUED . . . THE TEMPLE OF THE MAD GOD . . .

. . . You remember last month we discovered the long stairs to the Mad God's temple, but were too weak to continue. After resting in Skara Brae we again returned to the sewer but blundered for a day trying to gain admittance to the temple. I realised that we were given an important clue in the sewers by the disembodied lips! Tarjan! No sooner had I uttered the word than we found ourselves in a catacomb. Dark and twisting tunnels lay before us like a maze of hardened entrails, and human bones reached out from the hard packed earth like ghastly pallid fingers. We move on, and night and day flow together. We battle endless numbers of undead creatures, weapons fall from our nerveless fingers. The screams of our dying comrades fill our ears until we who remain can bear no more.

A message scrawled in blood . . . "the ancient Witch King yet lives". Are there greater terrors yet to be encountered? Etched into the wall we find this message:

"Fifteen doors east and thou art there
On souls they feast in the Dark One's lair"

Hope trickles from us like blood from a wound that will not heal. We have found a stairway leading down.

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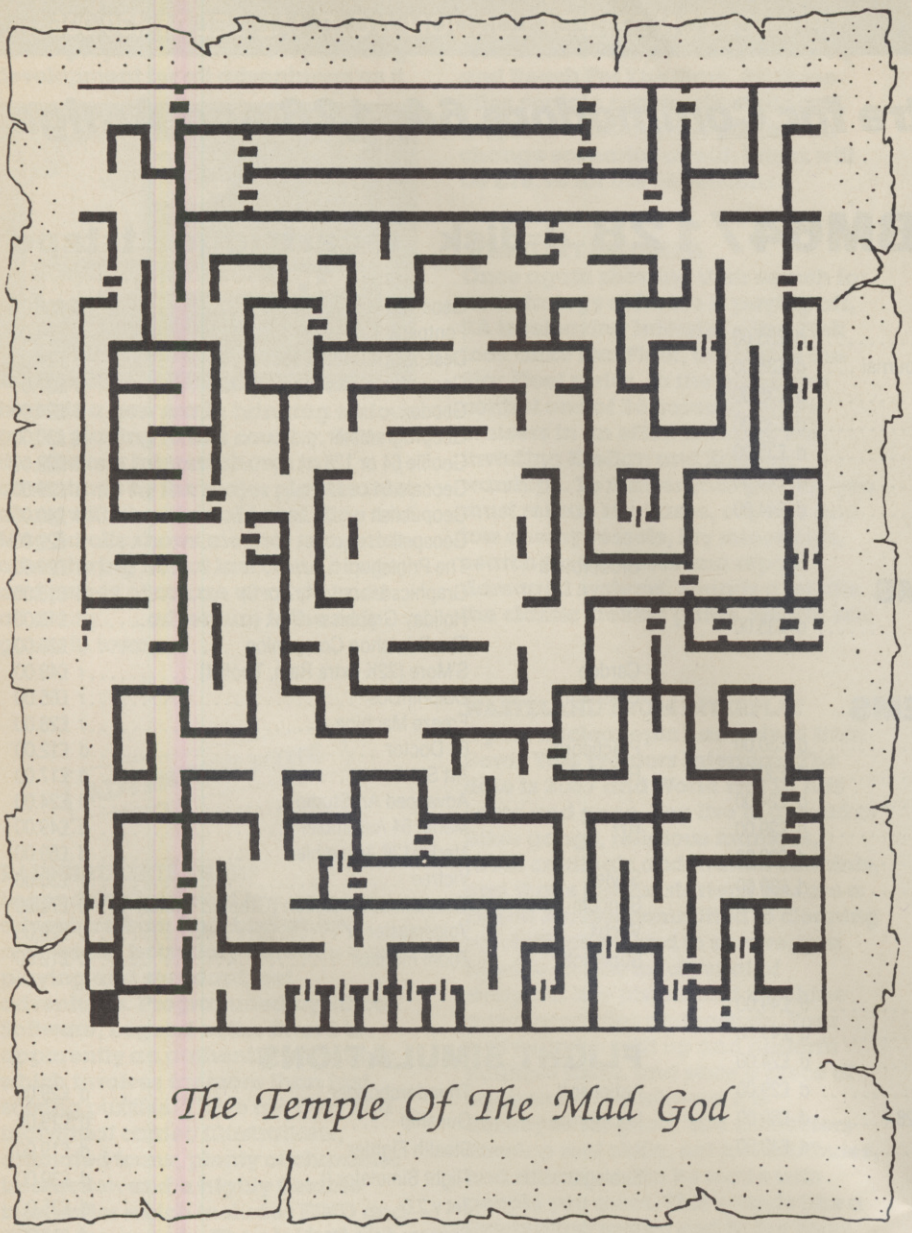


The Temple Of The Mad God

Three men have deserted in panic, mindless dread overtaking them, but eight of us remain including the Bard, the Magician, the Paladin, the Archmage Soriac and three serf warriors and myself. We go forward not through courage but because going back the way we came fills us with even greater dread . . . TO BE CONTINUED

ADVENTURE LETTERS

Dear Andy,
With reference to Steven Veitch's letter about Finders Keepers from the June issue. I know of two ways to remove the cat. The first method is to get the sulphur and charcoal from the traders and the magic flame. Then drop the sulphur and the charcoal on the saltpetre to make gunpowder. Finally drop the magic flame on the gunpowder to blow up the cat. The second way is to get the knife and fork (one object) and the leg of chicken to make a chicken bone. Then get the large hairy dog and drop it in front of the cat to chase it away.
Vivienne Moore, Hawick

Thanks a lot for that hint Vivienne, I will print the answer to your problem next month. No space this month!

Dear Andy,
First I must say that your adventure column is the most interesting and helpful item of CCI magazine. I am sure that you can help me, as I am stuck in Castle of Terror. I do not know how to get in to the castle. Please help me and tell me some easy adventures as I am a beginner.
Angelos Ayestratitis, Greece

Opening the gate to the castle is one thing, but keeping it open is another. In the village, you will find a spindle which is to be used to jam the turning lock. Beware, there are two barns that look identical but are, in fact, different, with an object hidden in each.

Hello Andy,
This is a first time for me, writing to a magazine, but I couldn't help feeling for Arthur struggling away with Faery Tale. I have sent you the full solution to this monster of an adventure. It practically destroyed my sanity along with that of my wife but what a poor finish! I wish that software houses would realise that after weeks of pain and anguish most people want a bit more than "Congratulations you have won" followed by a very poor picture.

The only fault I found was the lack of monsters. I counted about four types plus the witch, dragon and necromancer. Not only that but the monsters did not get any stronger with your character like for instance Bards Tale.

By the way, commenting on your point about a debate, I have completed a number of text/graphic adventures but no matter how far I am into one, if a good role player comes along everything else is shelved until completion (come on, Destiny Knight). Whether this startling fact will help you in your quest for the ultimate adventure type or not I don't know, but that is my preference.
Paul, BFPO 15

Thanks ever so much, Paul, for your solution, which I will publish next month in all its glory. You must have put in a hell of a lot of work and time on it. Well done! As to the ending, it is exactly what I was talking about a couple of months back. Why can't the celebrations go on for a bit and let you really get some satisfaction? The answer lies in the fact that programmers try to cram as many puzzles as they can into a game, and feel that the "End Game" is just a waste of memory. HMFFF! I take your point on role players, but that is the beauty of adventures, they just sit there until you go back and try once more where you left off. Destiny Knight is good, but wait till you see

Thief Of Fate (Bards III) that really hits the spot, as Scott used to say.

Dear Andy,
Soon I will have enough money for an Amiga 500. Could you point out some adventures that are relatively easy to play to start with and how hard Faery Tale or Pawn are?
Mark Coster, Australia

There are more and more titles coming out for the 500 now and most new adventures are available. Sadly, there are as yet no conversions of the old classics, so new will have to do. Introductory Infocom games are always a good bet, with Moon Mist my favourite. Watch next month for Faery Tale and the Pawn is pretty difficult for you.

Dear Andy,
Please find enclosed a complimentary copy of my latest issue of Soothsayer. I particularly like your appraisal and promotion of home produced adventures. My intentions are likewise, and I make it known to all amateur writers that advertising in Soothsayer is free, to our 200+ readers, including Infocom! I would be grateful if you would keep me informed of new home grown adventures with a view to making their availability known.
John Barnsley,
Soothsayer, 32 Merrivale Road, Rising Brook, Stafford, Staffs ST17 9EB (tel 0785 42660)

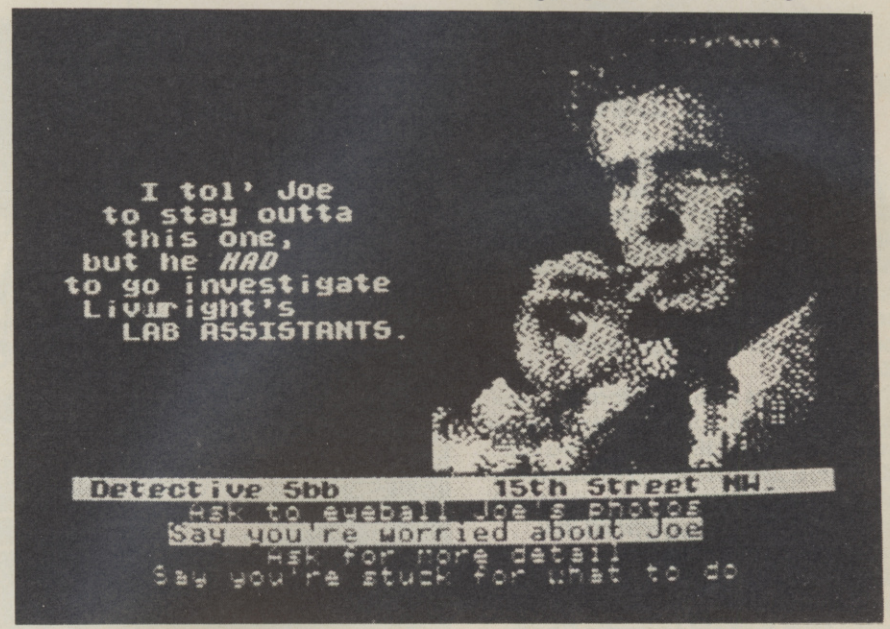
Will do, John, and likewise you can do the same. All the best.

IN AN EFFORT TO QUICKEN UP HELP FOR THE MANY READERS WHO WRITE IN, BUT DON'T GET THEIR LETTERS PUBLISHED FOR LACK OF SPACE, HERE IS A NEW SECTION FOR DESPERATE PEOPLE TO ANNOUNCE THEIR PROBLEMS, CAN YOU HELP?

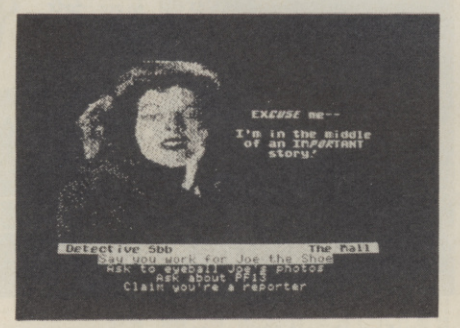
Jon is stuck in Velnor's Lair, getting past the Piranha Pool, and Venom. He can't get past the statues, or knows what to do with the berries. Jason on Big Cave Adv can't cross the bridge, doesn't know what to do with the ants in The Hulk and in Lucifer's Realm can't pass the Reverend or John Wilkes Booth. Steven Jarvis can't find the cauldron in Guild of Thieves or the Ring . . . Brian Bridgewater can't move the tax man's cart in Robin or get help from Maid Marion or find the Holy Grail or find a use for Little John . . .

ADVENTURE REVIEWS

SPEC. HOLOBYTE
MIRRORSOFT £14.95
A rather unusual adventure this one. It is a mystery story with over 2,000 possible endings with up to four players participating. When I first heard that Mirrorsoft were thinking of releasing it over here, I must say I felt an initial impulse to disregard it as a load of old tosh. Well, it is all in black and white for a start, and the theme was hardly new! When I got round to actually playing it I must say that I loved every minute of it.



The scenario brings you in to your brother Joe's detective agency only to find him missing. The agency is in a mess and what is worse, it seems he has been investigating a scheme to release a dangerous virus into the air of Washington DC. Your mission is to not only find your brother, but to deactivate the deadly viral device and catch the villains.



There are a number of key characters involved in the story, the hard-boiled agent Kruger, the Ambassador and his voluptuous secretary, the tough talking investigative reporter who seems to know more than she says, even the Spanish-speaking taco salesman could be involved. As you travel around the streets and landmarks of Washington, you come across the characters and, by careful questioning, information will begin to get through to you. When you meet a character, you get four questions to choose from, set out under their digitised pictures. The key is to pick the right question according to the response you get. You also come across telephones which allow you to call either your office (for possible new leads) or any numbers that you come across in your investigation. It's all quite well done even down to the ringing and dial tones. Finally, after all your foot slogging, you will by hook or by crook come across (I stumbled across!) the hideout. At this point you flip the disk and enter the finale, in which you need to deactivate the device (using the schematic you found hopefully) and then identify the guilty parties to win.

Some solutions are harder than others, but with over 2,000 to play through you get your money's worth. A very entertaining game that is well worth putting in your collection.
PERSONAL RATING 8

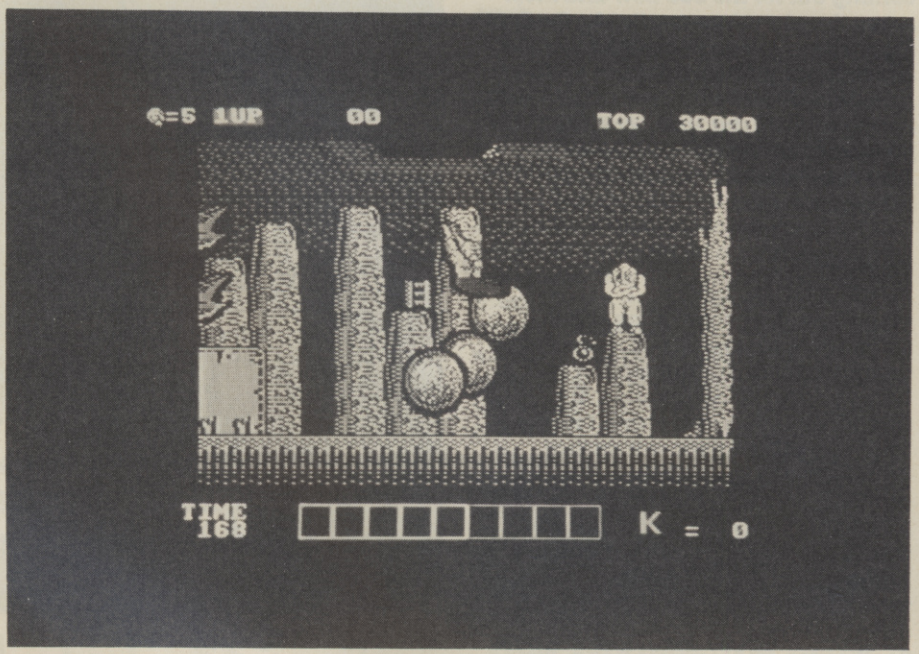
RUN OUT OF SPACE AGAIN I'M AFRAID. HOWEVER NEXT MONTH WE HAVE THE BATTLE OF THE DIY ADVENTURES, AS DAVID (UNDERGROUND) PICKING IS BACK WITH ANOTHER ONE ALONG WITH AD WILLIAMS' EFFORT "FIDICEN". THERE WILL ALSO BE THE SOLUTION TO FAERY TALE AND BARDS TALE AND (I HOPE) A COPY OF CORRUPTION TO REVIEW. FINGERS CROSSED.

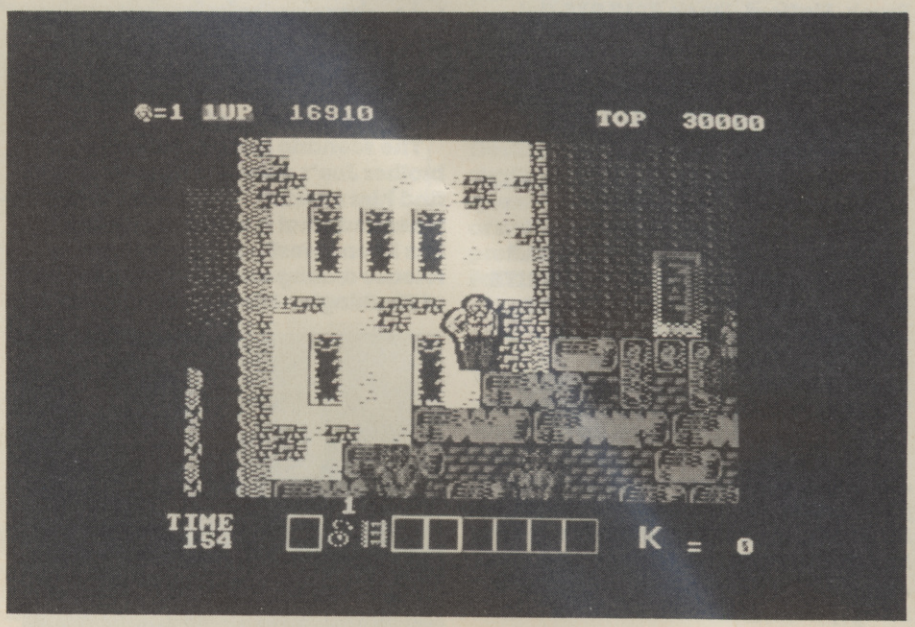
C64

DODGY

Karnov

Electric Dreams





At last it's here! Amiga owners have their 64 emulator and 64 owners can now experience the Spectrum emulator! Can this be true? All the joys of a thirty two column screen, colour clash and jerky scrolling? Yes, all this and less can be yours if you pick up a copy of Karnov.

Karnov was a coin-op that had me hooked for about ten minutes before suddenly losing its appeal. You are Karnov, a fire-breathing Russian circus strongman who sets out to put and end to a dragon named Ryu, recovering the lost treasure of Babylon in the process. Much of the game's inspiration has obviously come from that old favourite Ghosts 'n' Goblins, featuring similar horizontal scrolling platform action.

A bolt of lighting (that sounds more like a toilet flushing) delivers Karnov to his starting point. Your first major hazard is a gremlin (no relation to the software, I assure you), who throws a series of balls at you, jerking slowly one after the other. A short way into the game you pass through a town, with skeltons riding on ostriches to hassle you. Helpful items can be found along the way, giving extra firepower, flight, bombs and ladders amongst others. Ladders can be called upon to collect items that are otherwise out of reach.

Maybe on the Spectrum, eight pixel scrolling and jerky sprites are forgivable, but if 64 gamers wanted Specey games they would have bought the lesser machine (would they?). None of the 64's smooth scrolling or sprite functions have been exploited. The sound effects are even worse, they could hardly be more basic. Not only is the scrolling jerky but it is also very slow, killing off the playability drastically.

Karnov is one of those arcade games that found favour because of its gameplay, not breath-taking graphics. These games usually make the best home computer conversions, and so should have Karnov. Looking at the characters in the game, they are well drawn but ruined by lazy programming. Only the real hard-core fans of the coin-op may find some satisfaction lurking in the depths of the game, if their patience can stretch that far.

T.H.

Graphics: 41%
Sound: 9%
Playability: 26%
Overall: 30%
Rating: DODGY
Price: £9.99 (c)
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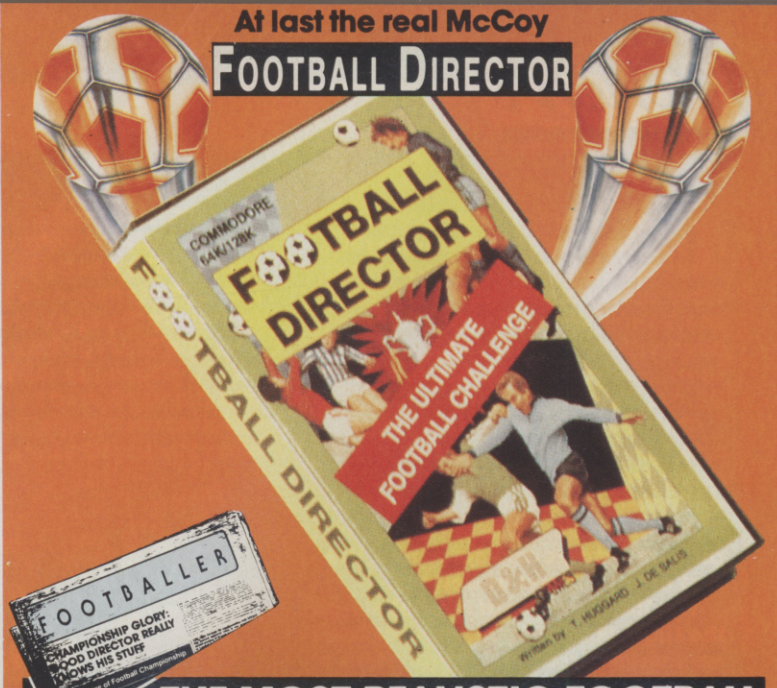

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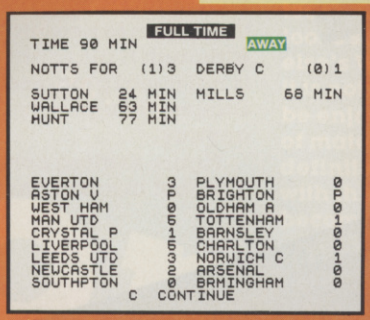

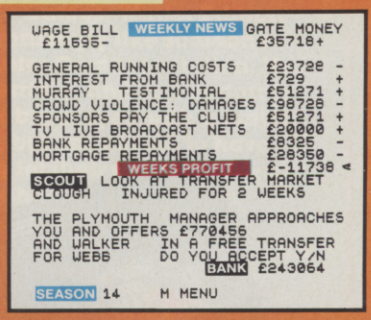

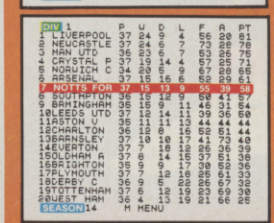

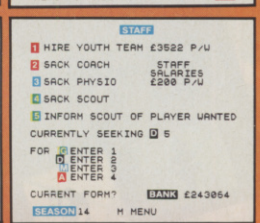

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The Games: Winter

In their never-ending quest to produce the best multi-player sport simulations around, Epyx have now come up with the sixth in the Games series. Seven snowy sequences make up the game, most of which are re-workings of those of Winter Games.

The opening ceremonies which open the games are a little disappointing, with a jerkily animated torch bearer lighting the Olympic flame. After entering the players' names and countries, the first event can get underway.

The little brother of the bobsleigh, the luge, is first. Lying on your back on something a little bigger than a tea tray, you must guide your player through the hairpin twists and turns of the icy course. All the different parts of the course are viewed as single screens that flick between each other, sometimes very realistically, sometimes not so sharply. For example, you could leave the screen and come back on in exactly the opposite direction. Steering the luge has little visible effect. Where are the broken bones and dismembered bodies of unfortunate competitors (Yes, I know I'm bloodthirsty.)?

Cross-country skiing comes next. Like a cross between Winter Games' biathlon and speed skating, the screen is split horizontally to give a side view of each player. Moving left and right in time with the skier's legs builds up speed, with a press of the button to negotiate slopes. Although it plays at a fair speed, it is not a real progression from Winter Games, though very enjoyable anyway.

Figure skating comes in two parts. The first involves choreographing your performance. Here you can select your music from a choice of seven pieces. Eight moves are now selected as the music plays. With that done you can get out and perform it. A very well-detailed sprite skates around a small rink with you timing the moves to coincide with your choreography. This plays fairly well, but the long choreography section tends to drag on.

My favourite event from Winter Games is the ski jump, so I was hoping this version would be even better. I have to say I was disappointed. Three screens portray the jump. The view switches from a distant one of the ramp to a first person perspective view. Keeping a straight line down the ramp, a press of the button launches you. Once in the air you must keep your skis under control and prepare for landing. Although it plays a lot like its predecessor, its graphics seem to me far less impressive.

Edition

Epyx

Probably the simplest event is the slalom. Two players race along a diagonally scrolling course of flags. Turning as little as possible will get you down in the fastest time, that is unless you hit a flag which sends you tumbling down the hill ending up as a snowball. There is really nothing here to impress or excite.

Speed skating has the two players viewed close-up in the centre of the screen with the track surrounding them. Using the familiar left and right rhythmic control method, the skaters are guided along the straights and round the bends. While the sprites are very realistically animated, the gameplay is no advance from the rowing of Summer Games II and the speed skating of Winter Games.

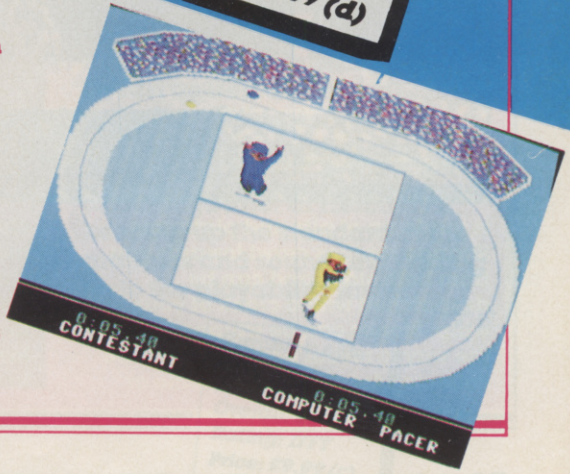
The final event is the downhill. First a set of cameras must be placed on the picturesque mountain-side. Half of the event is played as you would expect, viewed through the goggles weaving through the gates. When you pass a camera, the view changes to side on, where you can perform flips to impress the judges. In my case I spent more time tumbling embarrassingly down the slope. To begin with, with downhill can be quite a laugh, although the constantly switching views tend to be confusing.

I have to say I am a little disappointed with The Games: Winter Edition. In California Games, Epyx proved just how much life there is left in the theme and came up with a superb package. I found that in all their previous 'Games' there were always one or two special events such as hot dog aerials, sumo wrestling or surfing, together with some more long lasting games. None of Winter Edition's events is the type that get me instantly hooked, neither, I think, do they have enough to them to have much long term appeal, though I am sure that if you have not played the original Winter Games you will still want to have a go at these events because they are fun.

During the closing ceremonies an amazingly long list of credits scroll on: two sound programmers, seven graphic artists and nine programmers! Considering Epyx's reputation and the size of their team, The Games: Winter Edition looks surprisingly like someone else's Winter Games imitation. No, it is not terrible, and can certainly be enjoyable played with a bunch of mates, but Epyx seem to have definitely let their standards drop with this one (or is it that I am becoming too nostalgic?).

T.H.

Graphics: 68%
Sound: 45%
Playability: 63%
Overall: 62%
Rating: CRISP
Price: £9.99 (c)
£14.99 (d)

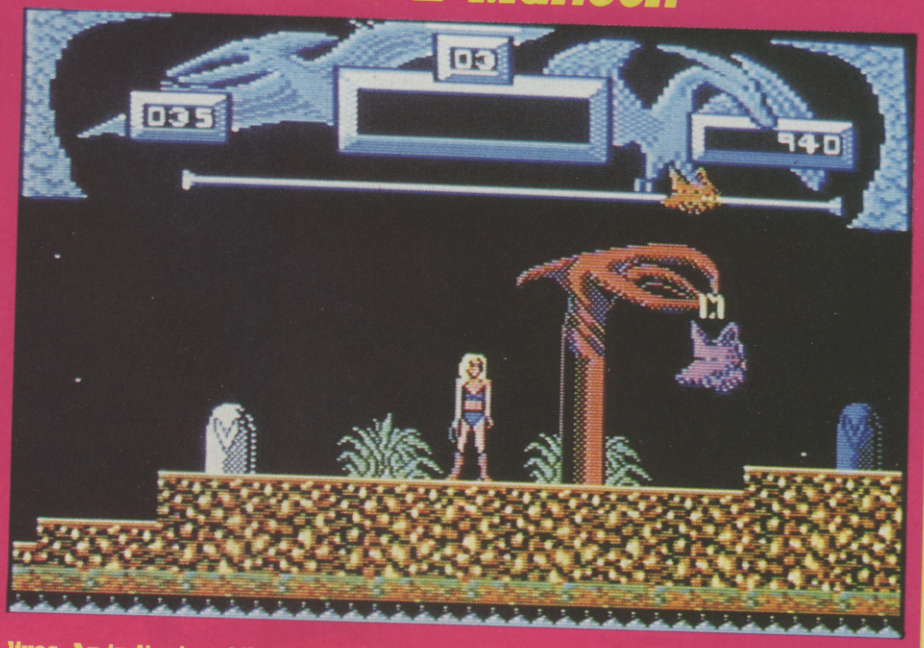


C64

CRISP

VIXEN

Martech

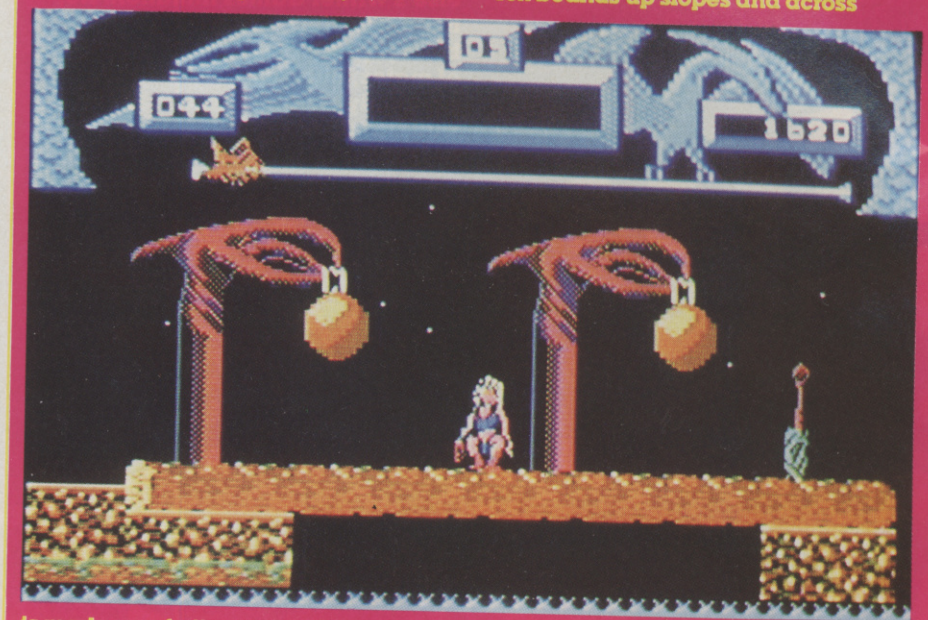


Now here's a game that at first seems very sexist; taking a leaf out of Palace Software's book, Martech have hired the services of 'Curvey' Corinne Russell, of Page 3 fame, for the cover shot. Kitted out in a saucy leopard-skin number, wielding a leather whip, she is a sure fire selling point. 'Sexist!' come the cries from feminists everywhere, but who plays the starring role? Some seven foot barbarian? No, a neatly pixelised representation of Miss Russell. It works both ways (and that doesn't refer to my, and Corinne's, pic in July CCI).

As for the game itself, what we have is really a simplified version of the coin-op Rastan Saga. Replace the He-man look-alike with an equally athletic female, switch the sword for a kinky whip and away you go.

In another world somewhere in the universe, dinosaurs have taken over and killed off almost every other species. You are Vixen, raised by foxes from a young girl and gifted with the ability to transform from a woman to a fox. You have taken it upon yourself to rid the world of the hordes of evil reptiles. Quite right, too.

Scrolling from right to left, the land is made up of pits and platforms. Strange reptiles crawl towards you from both sides and can be despatched with a crack of your whip. Stones can be whipped along the way to reveal bonus gems to be collected for extra points, time or lives. An indicator at the top of the screen shows your fox time. Cracking your thong of command at one of the many globes hanging from the foliage will uncover a fox head, which when collected adds to your fox time. With a full supply of fox time you can enter the bonus round.



Here a very realistically animated fox bounds up slopes and across chasms, collecting more gems and a mega whip that kills even the most stubborn of scalies in one go. Once out in the open again, you realise that each level is very similar to the last. A new type of enemy and a more taxing platform layout perhaps but nothing more than that. It left me thinking why I should bother completing one more level if it is just going to be the same as all the others, but I did. An addiction, I suppose, of least for the athletic canine. (She told us she is a contortionist!)

Previous attempts to computerise page three girls have had little success, Sam Fox's Strip Poker and the chunky Miss Whittaker in Barbarian spring to mind (not that the games were flops). Vixen has succeeded here with a detailed sprite that despite its slight lack of frames, is very well animated. The boogie she does as she falls into a pit is particularly well done. Some of the other graphics look as if they have come off a Spectrum but are agreeably and skilfully drawn and smooth moving all the same. Music and sound effects are pretty weak and do little for the game.

Vixen is instantly playable perhaps partly due to its derivative design, and for the same reason its appeal may fade rather quickly. Then again, fans of Curvey Corinne could find the big colour poster included with the game just too much to resist! It is gracing our office walls!

T.H.

Graphics: 72%
Sound: 42%
Playability: 74%
Overall: 70%
Rating: CRISP
Price: £9.99 (c)
£12.99 (d)

C64

IFFY

HERCULES — SLAYER OF THE DAMNED

Gremlin

Greek mythology would seem an excellent topic upon which to base a computer entertainment. All those heroes and baddies, monsters and adventures could make a great game. Gremlin thought so too, but seem to have taken very less advantage of the bulging potential than they might.

You, as Hercules, have been assigned twelve seemingly impossible tasks – 'The Labours of Hercules' – after you killed your children whilst under a curse from Hera. The instructions go to great lengths to explain this, reeling off a long list of names from Greek mythology. So how are these twelve tasks represented? Twelve action packed arcade adventures? In fact it turns out to be a simple one-on-one combat game.

Armed with a club, you have fourteen moves with which to fight off the skeletons. Some imaginative names have been thought up for what are pretty standard moves. For example, Punch of Death is translated in the key as "punch" and Zeus' Torment and "mid blow". What we have is a range of club blows to suit every occasion and a couple of kicks thrown in for variety. Hitting the skeletons is

"Hits are only registered on your opponent when standing over the snake that wriggles along the bottom of the screen"

hardly exciting as they only react very slightly. An attempt at rereating the beheading sequence of Barbarian has been made which adds more welcome action. Hits are only registered on your opponent when standing over the snake that wriggles along the bottom of the screen.

From time to time, icons drop from the top of the screen, bounce a while and vanish. These are the tasks which must be "performed". This involves hitting them before they disappear. Once all twelve have been hit or "performed" you can meet the minotaur in a final battle to win the game. An interesting mixture of mythological references!

So much for all that high adventure! If Hercules was to be a straight forward beat 'em up, it could well have gone further than this has been taken. The game plays at a casual pace and the snake, I feel, although pleasant to look at, just proves an unnecessary hindrance. Hercules seems to have a nasty skin complaint, or is that meant to be subtle shading? His, and the skeletons' animation is a bit on the wobbly side but the background graphics are very much more attractive. Some music sets a suitably gloomy atmosphere and the sound effects have been agreeably well erected.

It is a pity that Hercules does not live up to the very wide potential of 'The Labours'. One could imagine cleaning out the Augean Stables which get dirty as fast as Hercules cleans them could be an interesting, challenging computer test. Still perhaps Gremlin will have another go later at Hercules II, keeping up the standard of the graphics and sound and adding on to the playability factor.

T.H.

Graphics: 68%
Sound: 82%
Playability: 49%
Overall: 52%
Rating: IFFY
Price: £9.99 (c)
£14.99 (d)

HORGAN'S HINTS

We've a big variety in this month with some great pokes for the 64 as usual as well as some for the 16 and a good helping of tips for the Amiga, including a map of Psygnosis' Obliterator. So with further ado, I will say that Hansen Kendrick gets the subscription, ten quid and of course that posey CCI T-shirt this month for his help with the map.

C64

Ikari Warriors

One thing Elite got right in the conversion of the coin-op was the difficulty level. If it's all a bit too much for you, try out this listing from Tristram Moore for infinite lives. Enter and run it before loading the game.

```
10 FOR I=543 TO 605:READ
X:A=A+X:POKE I,X

15 NEXT:IF A=7141 THEN SYS 543

16 PRINT "ERROR IN DATA!":END

20 DATA 32,44,247.56,169,21,
141,177

30 DATA 3,169,55,141,178,3,
169,106

40 DATA 141,179,3,32,108,245,
169,67

50 DATA 141,39,184,169,2,141,
44,184

60 DATA 32,191,3,96,72,169,
191,141

70 DATA 178,3,169,3,141,179,
3,169

80 DATA 0,141,76,36,141,125,
35,169

90 DATA 181,141,115,196,76,
225,185
```

If you have a reset switch you can take the easy way out with Stephen Logie's pokes:
Reset when the plane is crashing and
POKE 50291,165
SYS 3968
Then reset again when the plane is crashing and re-enter **SYS 3968** to restart with infinite lives.

IO

Here's one that starts you with a full arsenal, and as I'm feeling kind I'll even throw in an infinite lives poke, both from Tristram Moore.

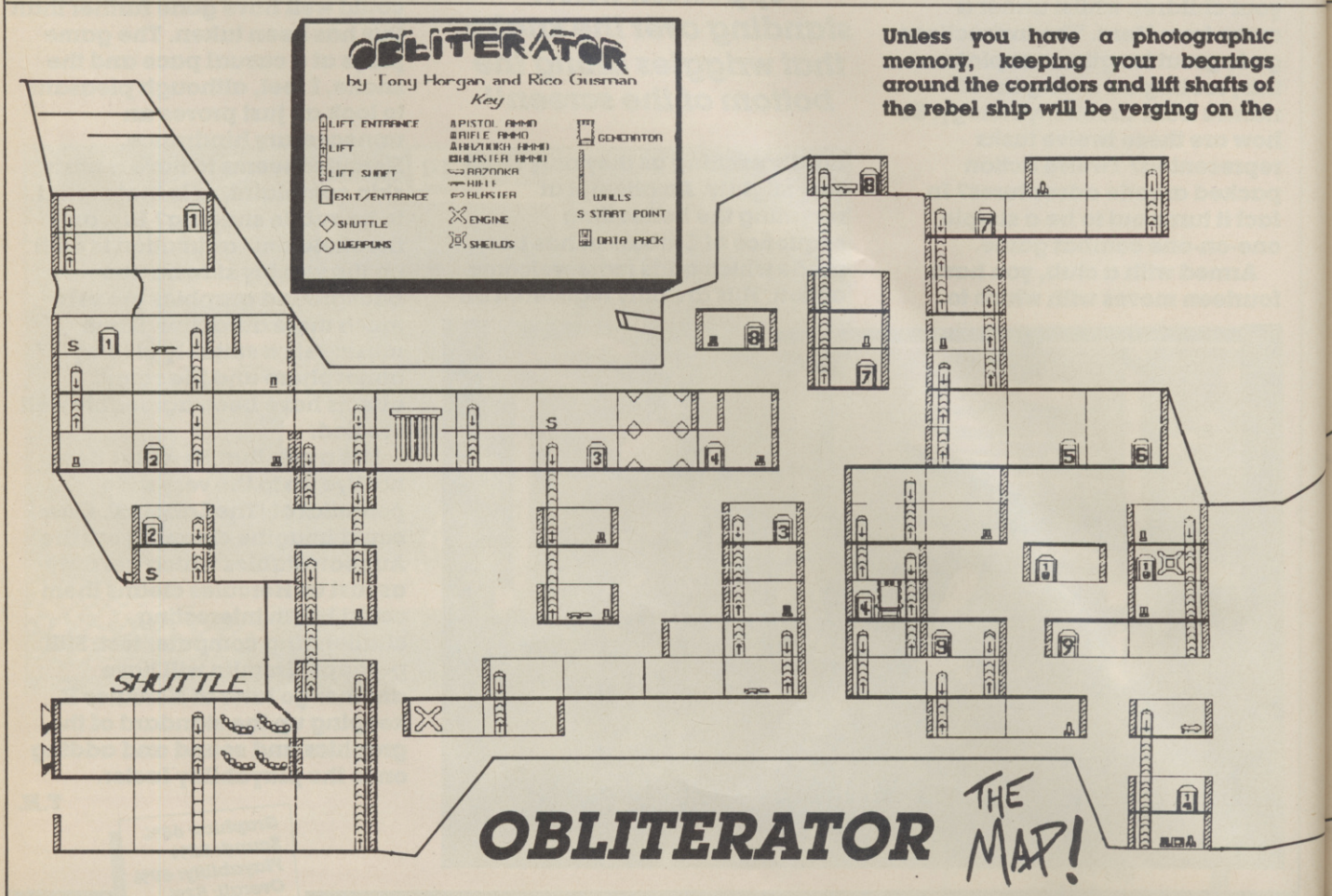
Reset and enter:
25117,254 (infinite lives)
POKE 24932,2
POKE 24964,2 (to start with all weapons)
SYS 24586

Cybernoid

Stephen Logie has a couple more pokes on offer, once again for infinite lives.

Reset and enter:
POKE 28870,165
POKE 41429,98
SYS 2072

Robert Troughton has supplied the following quartet of cheats:



Unless you have a photographic memory, keeping your bearings around the corridors and lift shafts of the rebel ship will be verging on the

OBLITERATOR THE MAP!

Herobotix
The codes and some invincibility pokes for Rack-it's cheapy: NEVETS, CANORB, CRYSTA, HOBBIT, CHMAIN, MASTER, NITRAM, BENCRI, COMMOD, ASIMOV, GOLDEN, OXYGEN, ZOOLOK, GRAFIX.

Then again you could enter these after resetting:
POKE 34671,44:POKE 33449,44:POKE 34209,44:SYS 29948

Zig Zag
How about giving these codes a try?
1STXLC4RPF
1N3LDYVJGF
XKYGHLNJCF
KV2F5NMJNF
CUIDRQZPWF
GQU5JFCPIF
G5IDPQZPWF
GZ53BQVP1F
NQZIUZ4PAF

Slimey's Mine
Reset the game and enter:
POKE 7966,138:POKE 2352,173 (infinite lives)
POKE 21607,173:POKE 21671,173:POKE 22845,1 (unlimited red diamonds)
POKE 22845,(0–255) for a set number of diamonds
POKE 2331,0 (invulnerability in the caves)
POKE 2352,173 (unlimited lives in the caves but don't enter the pokes above)
POKE 7966,173 (unlimited lives on asteroid level)
SYS 23052

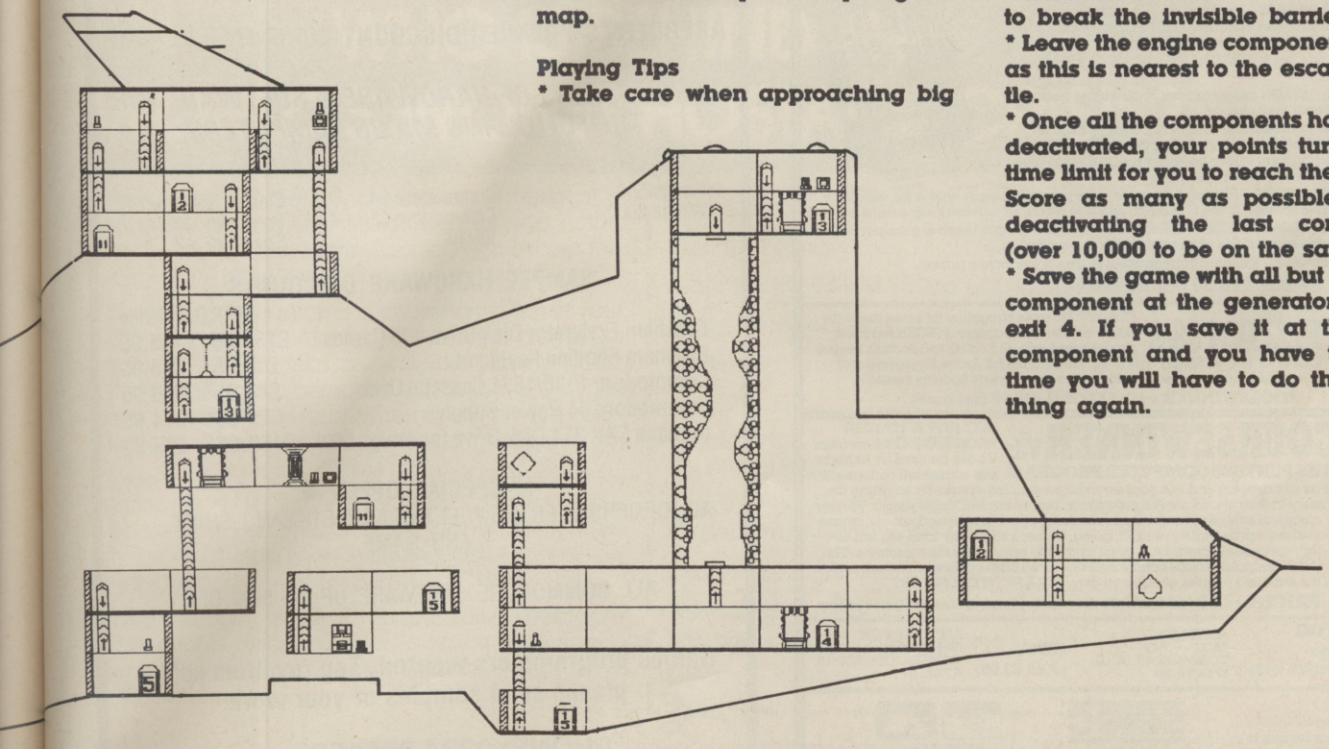
Ricochet
Redefine all the keys to Q and enter GARGLUVSBIGBOTS on the title screen. The border should now flash and when you play you will have infinite lives, a level advance option (CBM key) and a screen designer which uses these keys:
+ advance a screen
– back a screen
FIRE place a block
SPACE erase a block
N alter screen name
M move onto another (fire to drop)
F1 allows you to move the yag start position
F7 deletes the current screen
INST/DEL inserts a screen (F7 and INST/DEL clears a screen)
Q,W,E,R,T,Y,U,I alters the block type
1,2,3,4,5,6,7,8 alters the block colour
CBM shows the screen variables
CLR HOME returns you to the game.
Using F1 you can advance a screen but this takes a life.

Traz
Continuing the bat and ball theme, Alex Jones has given Traz a thorough hacking, resulting in this listing for infinite lives and the chance to edit the in-built screens.

```
10 REM * TRAZ  HACKED *

20 REM * BY NOSEDEATH *

30 FOR A=52736 TO 52852

40 READ B

50 POKE A,B:T=T+B

60  NEXT:IF  T<>  13869  THEN
PRINT "ERROR":END

70 SYS 52736

80 DATA  162,127,189,0,206,157
,0,14,202,16,247,169

90 DATA  1,170,168,32,186,255,
169,0,32,189,255,169

100 DATA  0,32,213,255,169,76,
141,183,2,169,51,141

110 DATA 184,2,169,14,141,185,
2,169,2,141,121,3

120  DATA  108,2,3,169,64,141,
40,13,169,14,141,041

130  DATA  13,108,0,12,169,0,
141,113,121,169,134,141

140 DATA  216,164,169,169,141,
217,164,169,1,141,218,164
```

continued on next page

impossible. That is unless you take advantage of our map of the entire ship, complete with starting points, component locations, weapons, ammo and everything else of any importance. Used with the playing tips it should get you through Psygnosis latest graphical wonder. Thanks go to Hansen and Christopher Kendrick for their help in compiling the map.



Playing Tips
*** Take care when approaching big ammo supplies; clusters of ammo are often booby trapped with guns and armies of aliens.**
*** Only the bazooka will break down the big visible barrier.**
*** Shoot the control box with the pistol to break the invisible barrier.**
*** Leave the engine component to last as this is nearest to the escape shuttle.**
*** Once all the components have been deactivated, your points turn into a time limit for you to reach the shuttle. Score as many as possible before deactivating the last component (over 10,000 to be on the safe side).**
*** Save the game with all but the final component at the generator next to exit 4. If you save it at the final component and you have too little time you will have to do the whole thing again.**

HORGAN'S HINTS

```
150 DATA  169,206,141,107,128,
169,93,141,112,128,162,8

160  DATA  189,108,14,157,206,
93,202,16,247,76,0,128

170 DATA 72,169,0,133,227,133,
228,104,64
```

Rolling Thunder
Never again need you fear Maboo and his Bananaman guards; simply reset after loading and...
POKE 33570,173
SYS 32768
to play with infinite lives thanks to The Godfather.

Road Runner (disk only)
Just after you start to play the first level, take the disk out of the drive. When you complete the level it will start again at level one, thinking it's level two. Do this as much as you like and then insert the disk to continue from the correct level. For example, play the first level five times and you'll get onto level six!

Jason Haymer (not James as I called him last month) let me know of that cheat and also informed me that....

Frak!
Last month I said to enter AMERICAN EXPRESS on the high score table but forgot to tell you that shift lock must be on first.

The border will turn white and taking off shift lock gives you invulnerability. However, don't climb any ladders or ropes as you will get stuck and have to re-load.

Revenge of the Mutant Camels
Type GOATS on the title screen for infinite lives. In the game, pressing any key will take you onto the next level.

Matrix
Press CTRL, RUN/STOP, CBM key and fire to advance a level.

C16

Kikstart
Enter the monitor and type:
>26AC 60 (lets you run through baddies)
>20D6 EA EA (for a very fast game)
G2000 starts

Ghosts 'n' Goblins
These alterations made via the monitor work on level one only.
>20C7 EA EA (the zombie behind doesn't move)
>1028 A9 FF (255 lives)
>13DA A9 01 (fast firing)
>176C A9 X (substitute X for 0-6 to change speed)
>10F7 A9 X (substitute X for 1 or 2 to change section)
>23C A9 X (substitute X for no. of flying men)
>1110 EA EA (infinite lives)
>14DF EA EA (for the ability to walk on people's heads)
>1F34 EA EA (lets you walk through men)
G10F7 starts.

AMIGA

The Three Stooges
1. When you get to the slapping sequence, get Curley with an ear-pull and keep the joystick in that diagonal whilst rapidly pressing the button. This way you can always slow down the hand.
2. To win every time on the trivia, instead of moving the stick to A, B or C, simply press fire when they are all flashing. Easy eh?

Before I go, I'd just like to point ou that the name's HORGAN, not Hogan or Morgan or Torgan (or especially Organ!) as just about everyone I met at the Commodore show seemed to think. Anyway, you know there's only one place to send all your pokes, maps and blurb, so get them off to:
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40 Bowling Green Lane,
London,
EC1R ONE.

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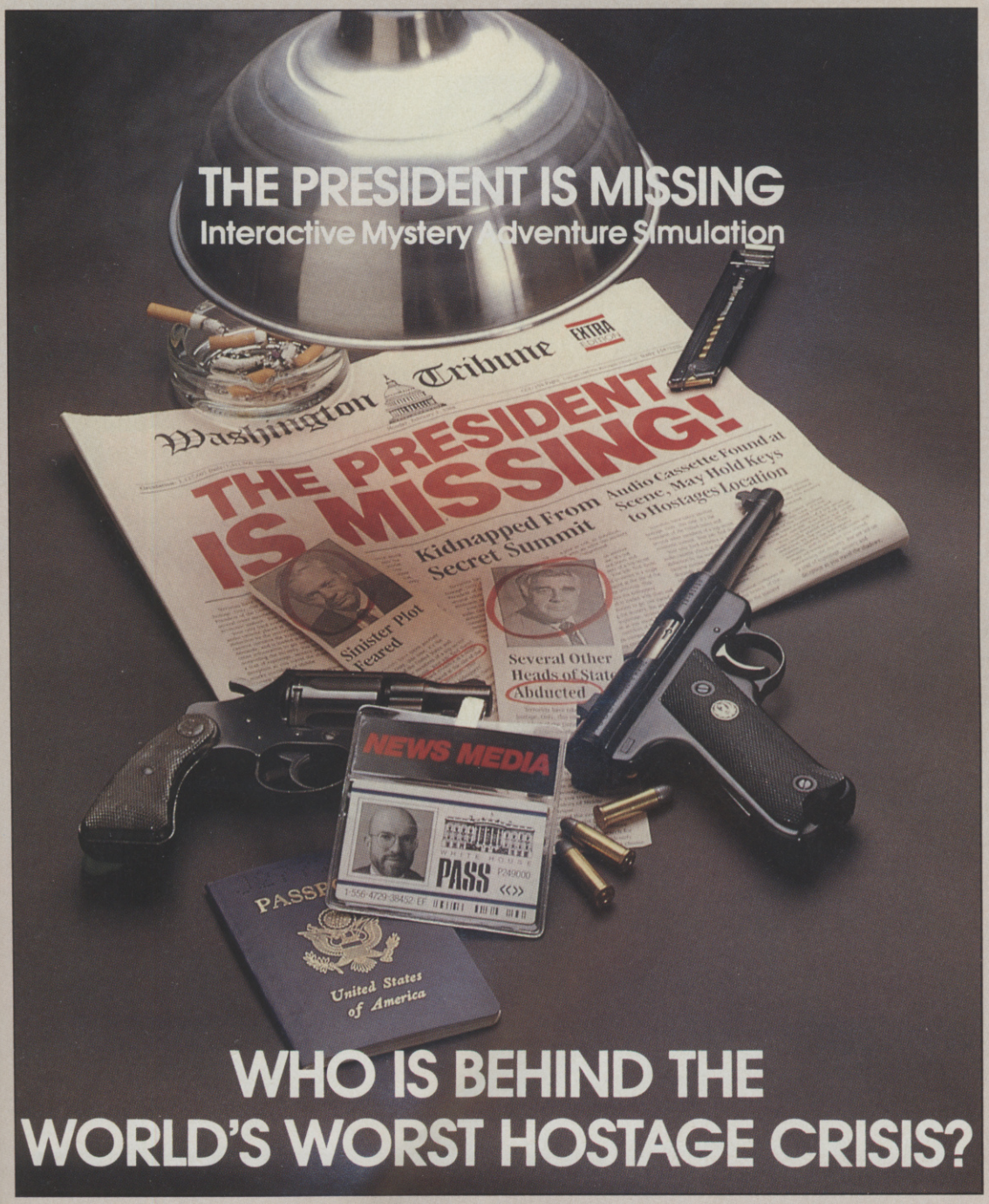

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F/A-18 Inter

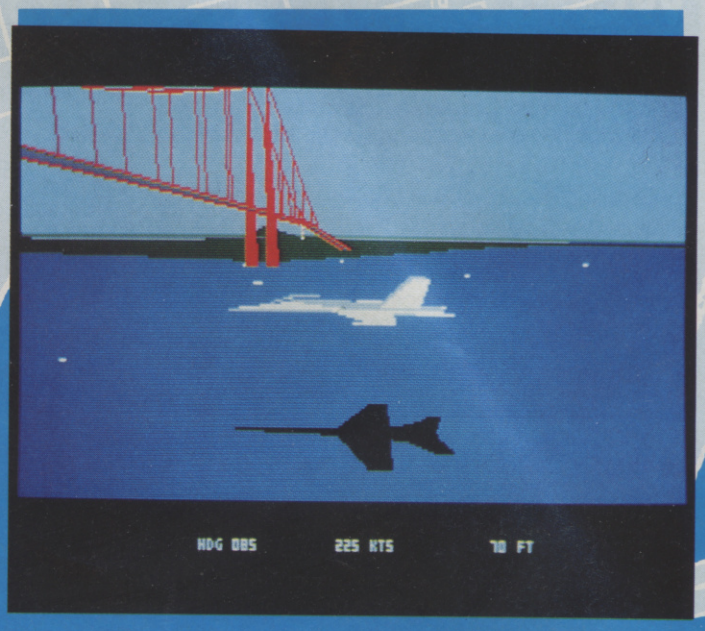
On a recent visit to the US, Electronic Arts gave AUI a full preview of an entertainment product on which they had been working for more than 18 months. Interceptor was impressive — very impressive. It contained elements that made it immediately recognisable as one of the most outstanding packages to appear on the Amiga. In graphics and gameplay, in sheer scope and imagination, it looked like having tremendous impact. Now it has arrived and Tony Horgan test flies what just could turn out to be a legend in its own time.

Spectacular graphics are something of a rarity when it comes to flight simulations. Too often they rely on bland landscapes and small jerky line drawings for enemy planes to recreate the exhilerating sensation of flight. As you can see from the screenshots in this review, Interceptor's programmers have surpassed this basic stage and come up with the best looking flight simulation on any micro.

As the game loads you are presented with a highly effective picture of the Interceptor in flight, viewed from under the wing. Megabyte users get a short passage of music to accompany the graphics. One of eight options can now be selected. Free flight is a handy mode for beginners, allowing you to get the hang of flight without being attacked by the enemy.

After you have chosen whether to pilot F-16 Falcon or the F/A-18 Hornet and picking your base, Interceptor immediately shows you its class. A map pin-points four airbases. I expected the view to then flip a view from the cockpit on the runway. However, to my amazement the view zoomed in from the skies right down to the base and up to the plane waiting on the tarmac. A brief glance at the control instructions is all you need to get airborne (no half hour take off procedures here). San Francisco Bay is the setting for all your flights. In free flight mode you can practice take-offs, landings or even flying through bridges.

From inside the plane you can spin the view as if you had the neck of an owl, allowing 360° vision, although really to appreciate the power of



the game you need to use the imaginary spotter plane. I found this by far the most enjoyable way to play the game, the ten different angles are much more involving than the standard cockpit view. From here you can see your missiles launching, undercarriage and arrestor hook being raised and lowered, chaffs and flares being discharged and even the pilot ejecting. This is what makes the game outstanding for me. Flying past the smooth, solid graphics of the carrier and other structures from the cockpit is fun but cannot

'To my amazement the view zoomed in from the skies right down to the base and up to the plane waiting on the tarmac.'

come close actually to seeing your plane dive, bank and roll around at the same time. The glow as the afterburners kick in is typical of the whole game.

A practice mode has been included which teaches a number of manoeuvres with the use of a tutor plane that performs each move in sequence with you following on behind.

ceptor

Electronic Arts

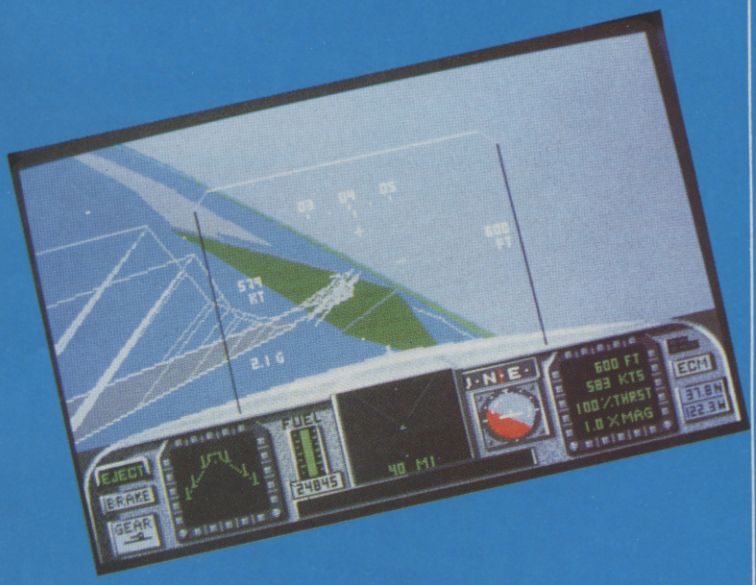
Jetting around with no particular aim is obviously not enough to make a game in itself. A number of missions are available but only after you have proved your worth. To qualify for a mission you must take off from a carrier anchored a short way off the coast, fly around and land back on the ship. I found the easiest way was to take off and fly dead straight for a short while before looping up and over the carrier and onto the opposite end of the runway. With that done

'The vast amount of detail and exceptionally attractive features will gain it a wider audience than just the dedicated simulation fans.'

you can save the President, see off intruders or rescue grounded pilots among other adventures.

Considering all the graphics are solid as opposed to transparent vectors, the game plays surprisingly quickly. There are some agreeable sound effects and realistic changes in the engine sound. It would have been nice to have had one mission you could attempt before qualification, but landing on the carrier is soon mastered. Not everyone will go for Interceptor (some just do not like flight sims) but the vast amount of detail and exceptionally attractive features will gain it a wider audience than just the dedicated simulation fans. I can safely say I have never played a more convincing flight simulator, and I bet you will not have played a better one either. If you use your Amiga for anything other than programming, you must not miss Interceptor. It will be very hard to find any game that gets near it for sheer excitement and playability.

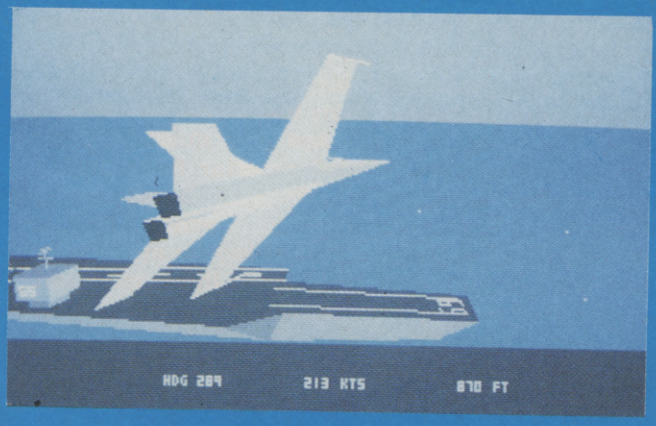
T.H.



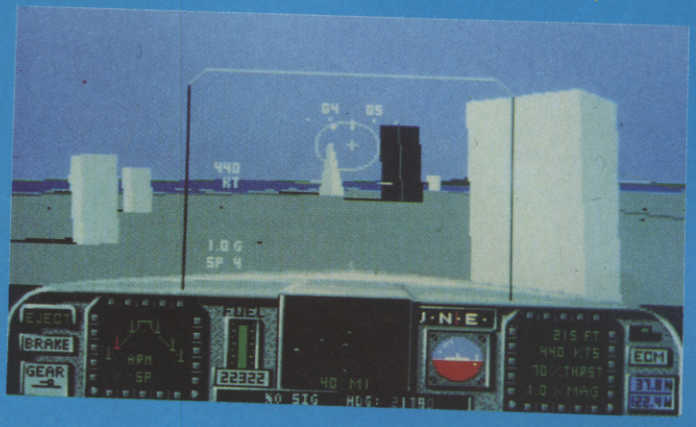
MISSIONS

There are a number of missions to carry out as pilot of an F/A-18 simulator. Four are outlined in the manual with further adventures available after each of the first four are completed.

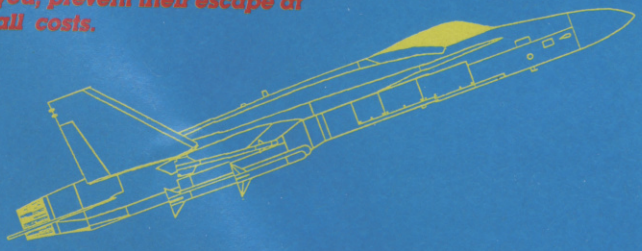
1. Visual Confirmation
An unidentified aircraft has been detected in your airspace. It may be friend or foe, so hold your fire unless attacked. Your orders are to locate and identify the aircraft before returning.



2. Emergency Defence Operation
The Commander-in-Chief is unaware of an attempt at this assassination which would severely undermine your defence. Scramble from the deck of the carrier and divert or destroy the aggressors. This demands highly skilled and dogfight manoeuvres and a calculated carrier landing.

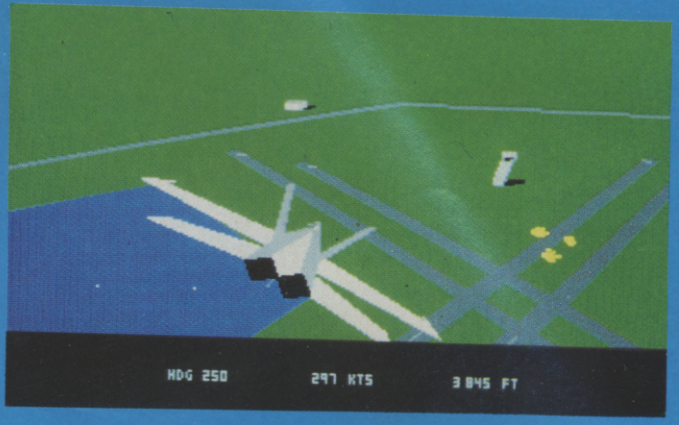


3. Intercept Stolen Aircraft
A couple of F-16 Falcons have switched allegiance from the US Air Force to the enemy's side. Accompanied by two escorts they have been spotted and must be stopped. Your job is to let them know the game is up. If they agree to return home, escort them back to base. If they ignore you, prevent their escape at all costs.



4. Search and Rescue Operation
A friendly pilot has been forced to eject and is known to be out there somewhere. With your radar and eagle eyes you must seek out the pilot and drop a rescue pod. With that done you can return to the carrier, always alert to enemy planes in the vicinity.

Perhaps the most vital, certainly to a US audience, would seem to be the 'Save the President' mission. (Though some would argue that you might not want to try too hrd for the present incumbent!) But they all are absorbing, all challenging and very worthwhile.



Graphics: 9
Sound: 7
Playability: 9
Value: 8
Price: £24.95.

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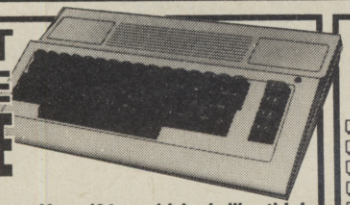

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THE PRESIDENT

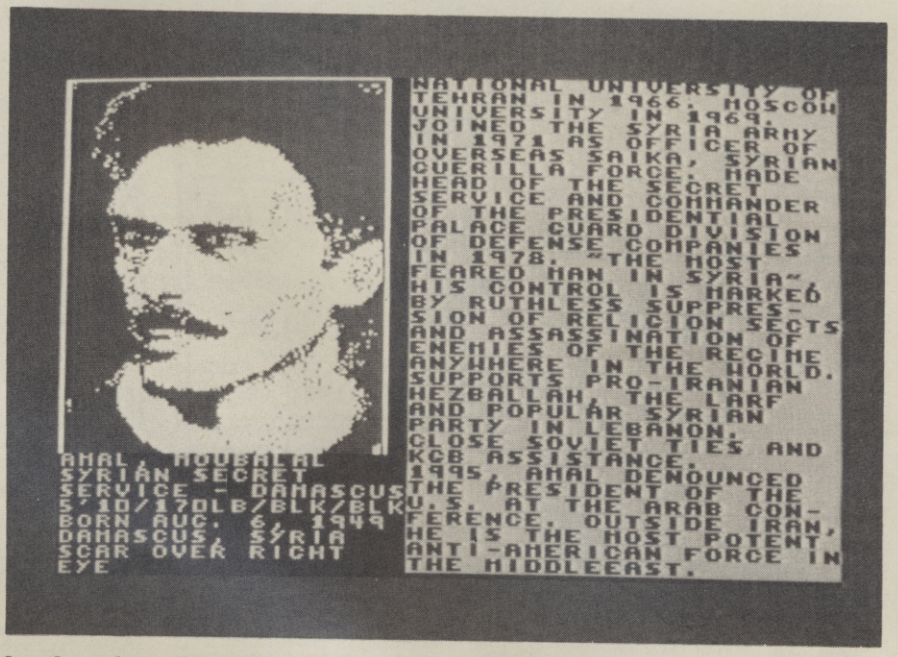
Cosmi have now unveiled their latest adventure concept, 'Interactive Adventure Simulation' so Andy Moss goes on the trail of the kidnapped president and what could be 'a 100% 24 carat of a game' . . .

ULTRA MAXIMUM SECURE
NO EXISTING INTERCEPTS
ACCESS CODE CORRECT
PROCEED .....

The figure hunched over the keyboard, his anxiety at fever pitch, and proceeded to enter his data.

"It is now three hours since I have started, and at last, a breakthrough. A report from the agent I sent out to monitor Todd Vogel, has confirmed that he is indeed a qualified chopper pilot, who is available for a price to any terrorist organisation. He just happened to be in Lichstenstein three days before the kidnapping. I have ordered his arrest for detailed questioning."

Cosmi are better known for their Super Huey helicopter simulators, and adventuring is something of a new area for them. So it is refreshing to see that, instead of opting for a more traditional approach, they have taken a bold step and produced an "adventure simulation". This follows the "Vera Cruz" or "System 1500" theme of cracking open a mystery of computer information gathering. You are given just a small amount of evidence to start with, and by sifting through files of information, further clues will be forthcoming. This form of adventure worked very well in Vera Cruz, and Cosmi have taken it a step further by including a brilliantly produced audio tape in the box. It has supposedly been found at the scene of the crime and contains various snippets of info delivered by very believable characters ranging from the President himself, to the leader of the Terrorists delivering his demands for the safe release of the hostages.



The story concerns the kidnapping of the President of the USA along with the Heads of all the European Nations at a secret conference which they were attending (at the President's request in Austria. The conference was so secret the invitations were only recieved one hour before the guests were to depart. Somehow, someone has had advance knowledge of this, and organised a kidnapping scenario that included helicopters, CS gas and enough military hardware to start World War III. Just who this is, and why is for you to find out – together with the locations where the hostages are being kept prisoner.

By order of the Vice President, you have been authorised as Special Investigator to the Commission on Abduction and Terrorism, with the sole purpose of examining evidence developed by established intelligence sources and evaluate facts and circumstances concerning the abduction.

ULTRA MAXIMUM SECURE
NO INTERCEPTS
PROCEED .....

"Another breakthrough, I have realised that there was a code word delivered in the President's tape transcript! He gave us the code name of one of the terrorists, all I have to do now is check on the files and the name will be mine. Yes, here it is, a woman! There must be a detailed report on her in the SUBJECT file, I will just call it up . . . . Damn!! It is not there! But it must be, un-

IS MISSING!

less someone has tampered with the computer and deleted her file. But who?"

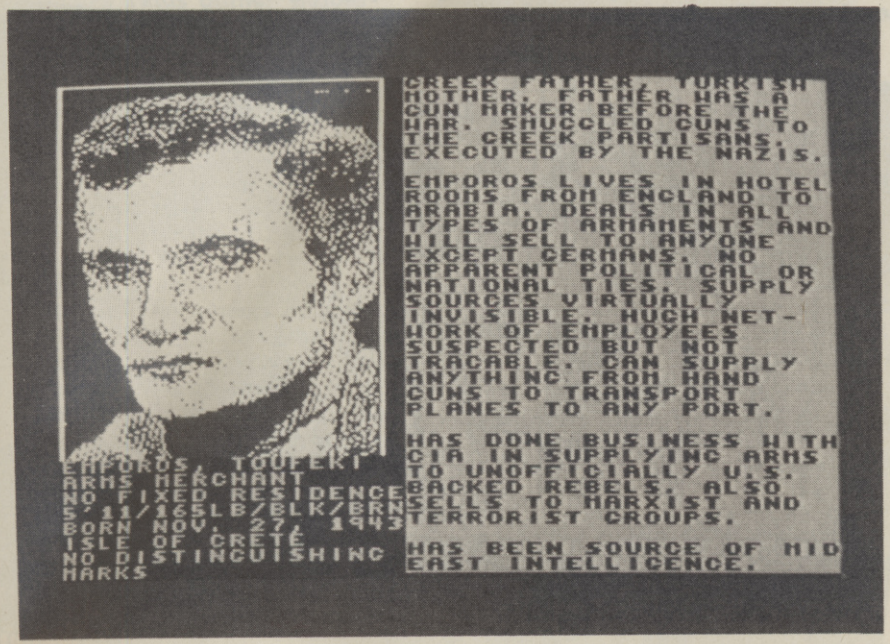
All the work is channeled through one screen called CONTROL, and it is the first screen you come to after logging on. The top of the screen is reserved for communications and bulletins, then there is a status line which keeps a record of the time taken so far. The work area is below this and it is from here that new menus are accessed. You have four primary menus, FILES, AGENT, CODES, COMMS. Typing any of these brings up further sub menus that will then bring up data from the discs on the info you need. Some of the incoming messages you get are from Field operatives (after previously sending them off to obtain intelligence on certain persons or places you deem necessary) State Department, the FBI or CIA, and news on QWorld events relating to your investigation.

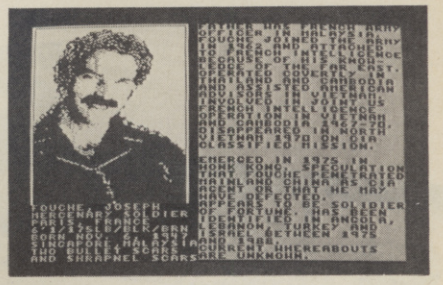
FILES is the most used menu as this will give you access to a vast database of info on all the characters in the story, photographic evidence, documents, papers and orders, police records, transcripts from the audio tape, and lastly your own personal case files where you type in your relevant facts that you want to keep on record (this is saved on a blank disc).

During the course of the investigation, you will come across some coded messages. There is an automatic deciphering facility, but this can be a long process, and time is what you haven't got. Instead of this, you can try and crack the codes yourself, using either your own brawn, or the help of a decoding program which is manually driven but sorts out the letters or numbers in different sequences for you. All in all the whole business of decoding is a painful time consuming pastime, but altogether realistic.

ULTRA MAXIMUM SECURE NO EXISTING INTERCEPTS PROCEED .....

"There is something not quite right going on. All around me even the Presidents Aides, seem to be guilty of something sinister, there is something bigger going on. It seems to me that the kidnapping is just the tip of the iceberg, there is an even more diabolical plot that I am uncovering which reaches a truly global scale. This is madness, lunacy, we have to stop them NOW! It is all in the files, the guilty ones, names addresses the lot. I have just got to find them before time runs out and it will be too late."





What makes this game so good, is that the actual solution is not given in the package. If you do manage to complete your assignment, having identified all the guilty parties, Cosmi insist on the correct prosecution procedures being followed. This entails you providing a list of all suspects along with the evidence you obtained to Cosmi for evaluation. The thoroughness and accuracy of your investigation will determine the courts verdict and sentence. When they receive your evidence, they will notify you as to the outcome based on your findings. This lends a whole base of realism right down to the last nail biting page.

I found "The President Is Missing" to be one of the most factually exciting detective games I have played. The attention to detail is brilliant, and is a 100% 24 carat gem of a game. The one moan I have is that there were a number of spelling errors which crept in that in a game of this style, just cannot be tolerated, as it is all text and one error can spoil the whole thing. That apart, I suggest you go out today, and get a copy and learn what pressure is all about. ***A.M.***

Price: £9.95 (cass)
£12.95 (disk).

BARBARIAN II

Palace

Barbarian II not only hit the charts but also the headlines. Boots (the chain of shops, not the things you wear) banned the packaging which employed the pneumatic charms of Page 3 girl, Marie Whittaker. Now Palace is swiftly bringing out the second in the series (wil there be Barbarian XIII one day?)

After you slew the warriors of the evil Drax and freed the beautiful Princess Mariana from his clutches in the first episode, Drax retreated to his subteranian dungeons. Unless he is stopped now he will carry out his plans to wreak disaster on the jewelled kingdom.

So fearsome are the mutations that inhabit the dungeons that no-one dared set foot in them; that is apart from Barbarian and Princess Mariana. Accusations of sexism have now been dismissed with the chance for the player to control the Barbarian or Mariana who turns out to be a bit nifty with a broadsword. Whoever you play, the task is the same: penetrate all four levels of the dungeon and defeat Drax.

If you could do with a bit more variety than hacking identical humans to pieces, try taking a shot at the twenty monsters in this sequel! Do not expect the usual one goblin with twenty different heads in BII; each one is very different from the last; ranging in size, colour, number of limbs (if any) and just about every other variation you could think of. Bags of clever details make Barbarian II a very promising hack and chopper. Amiga users will not be left out, their version will include superior graphics and sampled sound effects. If you thought sequels were becoming run of the mill, Barbarian II, planned for release in late Summer should put you right.

"Bags of clever details make Barbarian II a very promising hack and chopper."

The Three Stooges

Mirrorsoft

Far too often the rights to make a computer game based on a character are used solely as a selling point, with the character as

the main sprite in some otherwise insignificant game. You might expect that not to be the case with a game from Cinemaware who have made full use of their licence, basing the game around a number of scenes digitised from original films.

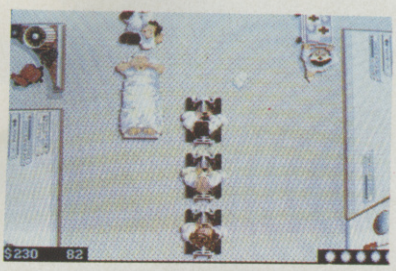
In typical Cinemaware style, the game opens on a high note. The title screen and music from Defender of the Crown greet the player. A few seconds later the tubby trio strut onto the screen announcing "Hey, this looks like a kids' game!" before putting on their own intro. This tells the tale of a feeble old lady running an orphanage with the help of her three daughters. Mr Fleecem, the bank manager, threatens to close it down unless the bills are paid within thirty days. The Stooges decide to help by raising the cash to pay the debts and renovate the orphanage. Who knows? You might even get to marry the daughters.

Once into the game, a strip of symbols along the top of the screen are used to select which of the sub-games to enter. A hand flicks randomly from one icon to another, stopped by a press of the button. Mouse traps are to be avoided; each time you land on one you lose a finger. Lose all your pinkies and the game is over.

Landing on a cash symbol sends the chubby threesome off down the road where they find a wallet. It is an easy way to make some money but unfortunately includes zero player involvement.

Another option is to respond to the advert for relief doctors at the local hospital. This is a simple but enjoyable race up a fast scrolling corridor. Patients on crutches and in wheelchairs cause problems, as do the stretcher bearing doctors. Catching supplies dropped from a nurse's trolley earns extra points. Some excellent cartoon style graphics often go unnoticed in the excitement.

A custard pie fight provides some enjoyably irresponsible fun. The game is pretty simple and involves just waggling the stick up and down and pressing the button. Due to this it can lose a lot of its appeal before too long. Again, the graphics and sound are really outstanding and help the action along enormously.



Another fund raiser is the boxing section. Curley has been nominated to knock out the champ in six rounds. For some strange reason, when Curley hears Larry play Pop Goes The Weasel he turns into a wild fighting machine. As the bell sounds, Larry's fiddle breaks in two, leaving Curley defenceless. You control Larry on a mad dash along a hazard-filled street to pick up a radio and save Curley. I found this part annoying at times and not particularly enjoyable mostly because of its inaccurate collision detection.

Cracker eating is another simple game sporting superb digitised graphics and sound. Guiding a spoon around a bowl of soup, oysters snap at the crackers causing Curley

to shriek and hoot in frustration. The graphics and sound here give the game a strong movie flavour.

A booklet of background info on The Stooges comes with the game. From this, questions in the trivia section can be answered. All of these are mildly amusing but the best part is the slap fight. This is the chance to slow the speed of the hand by clipping the ears of Larry and Curley. Loads of over-the-top sound effects sampled from the films make this a great variation on the beat 'em up theme.

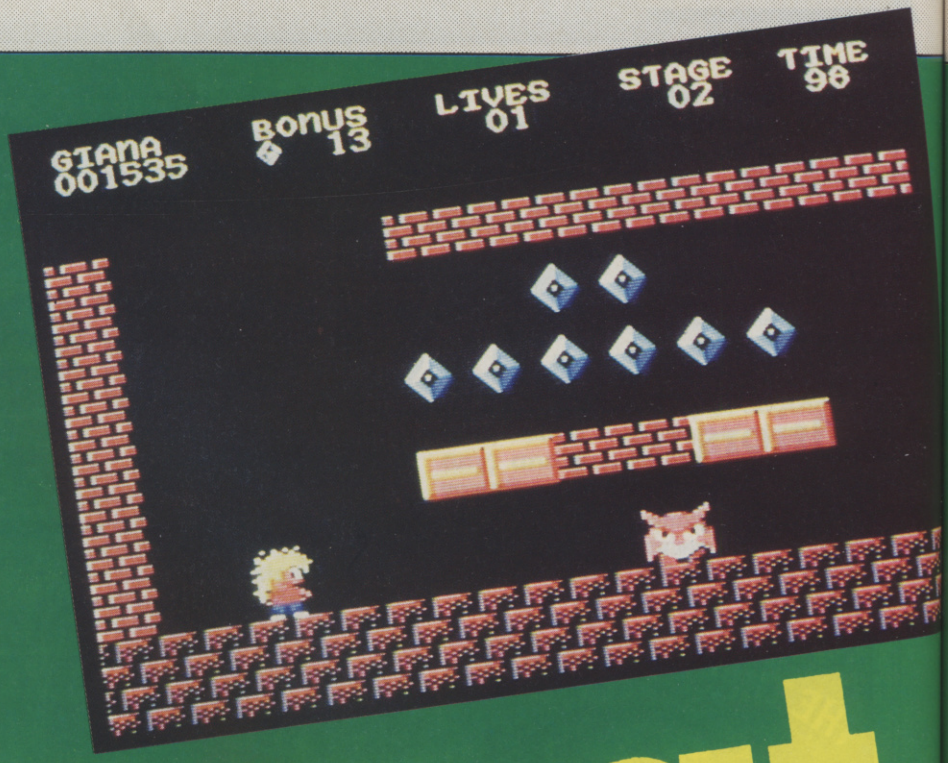
Amazing graphics and sound are all very nice, but if you want the game to last more than a day or two, it needs some involving gameplay. Each of the games on Three Stooges has a short life-span, relying too much on the impressive looks and sounds. The disk access somewhat gets in the way, and could cause your attention to wander. Although the games are taken from actual films they seem to lack a common theme or link. Defender, for example, chronicled the battles of Saxons against Normans which fitted together perfectly. The games in The Three Stooges feel a little disjointed and suffer from it.

Because of its simple gameplay and extremely attractive graphics, younger players would probably find 'Three' a great way of passing time. For the rest of us, the interaction will be a little too scarce for it to live up to its excellent sonic and graphic qualities.

T.H.

Graphics: 94%
Sound: 90%
Playability: 69%
Value: 69%

Price: £24.95



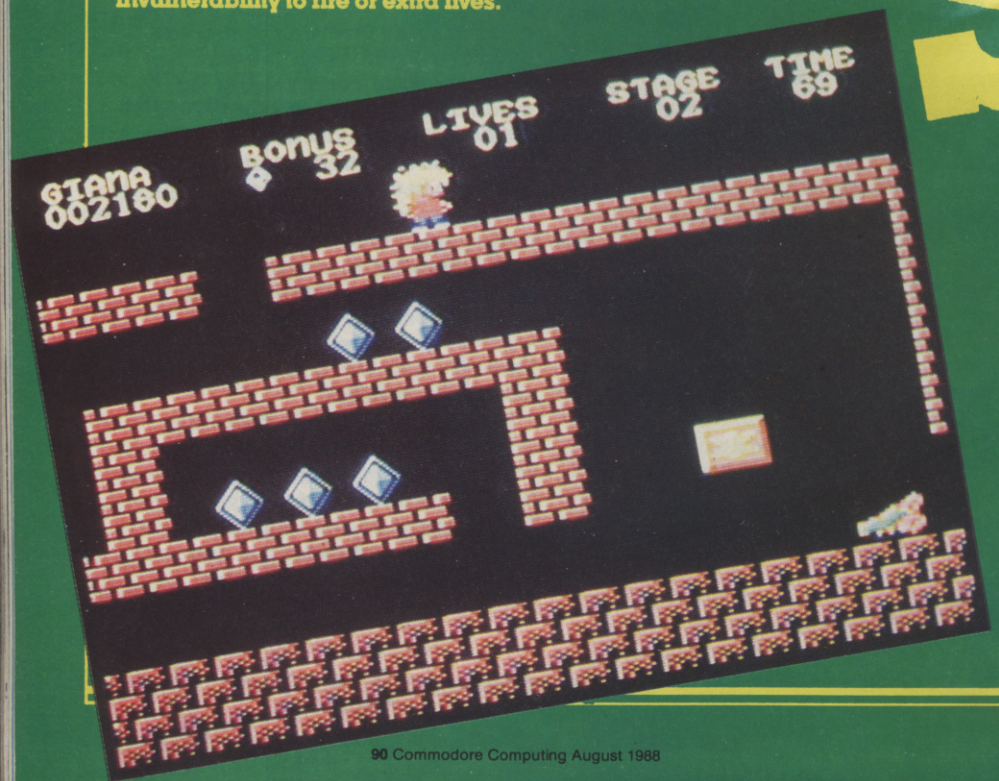
Great
Sist

If you have been feeling envious of Nindendo-owning friends, longing for a 64 version of Super Mario Bros., Great Giana Sisters will be right up your street.

Giana and her sister Maria have entered a wierd dream world with a strange urge to reach its opposite end. As you might expect from a dream, the sisters now have the ability to jump to dizzying heights, essential for negotiating the platforms in the dream world. Apart from the chasms between platforms, your biggest problem is avoiding the nasty eyes, lobsters and other blobby monsters.

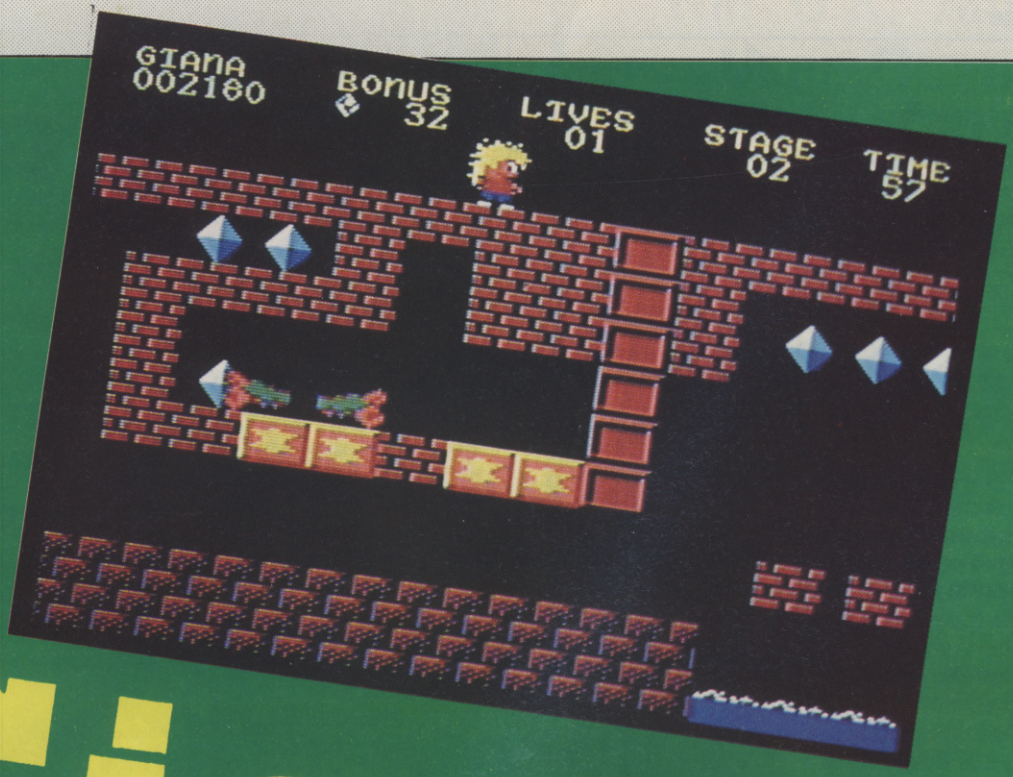
Special blocks marked with glowing stars can be head-butted to reveal bonus symbols. The first gives Giana or Maria a spikey hair-style allowing normal brick blocks to be nutted. Most will just turn to dust but others produce diamonds or turn to boulders that fall to the ground.

Boulders can often be used as stepping stones to get at secret invisible blocks that give more gems. Three strengths of fire power are available, as are magical items to freeze or kill baddies, give invulnerability to fire or extra lives.



In general, holes in the ground need to be jumped over, but now and again you will come across one that leads to a secret room packed full of gems. These and the invisible blocks give something to go for once you have seen everything (though that should take long enough). Exploring the scrolling lands is quite a task, with the difficulty set so that a little more is discovered with each game. Due to the thirty two levels there are not that many variations in the levels' features but a few new obstacles are introduced from time to time to keep up the interest.

Giana Sisters relies more on its lively sense of humour than detailed graphics for its visual appeal. Simple looking but well thought out platform patterns make up most of the



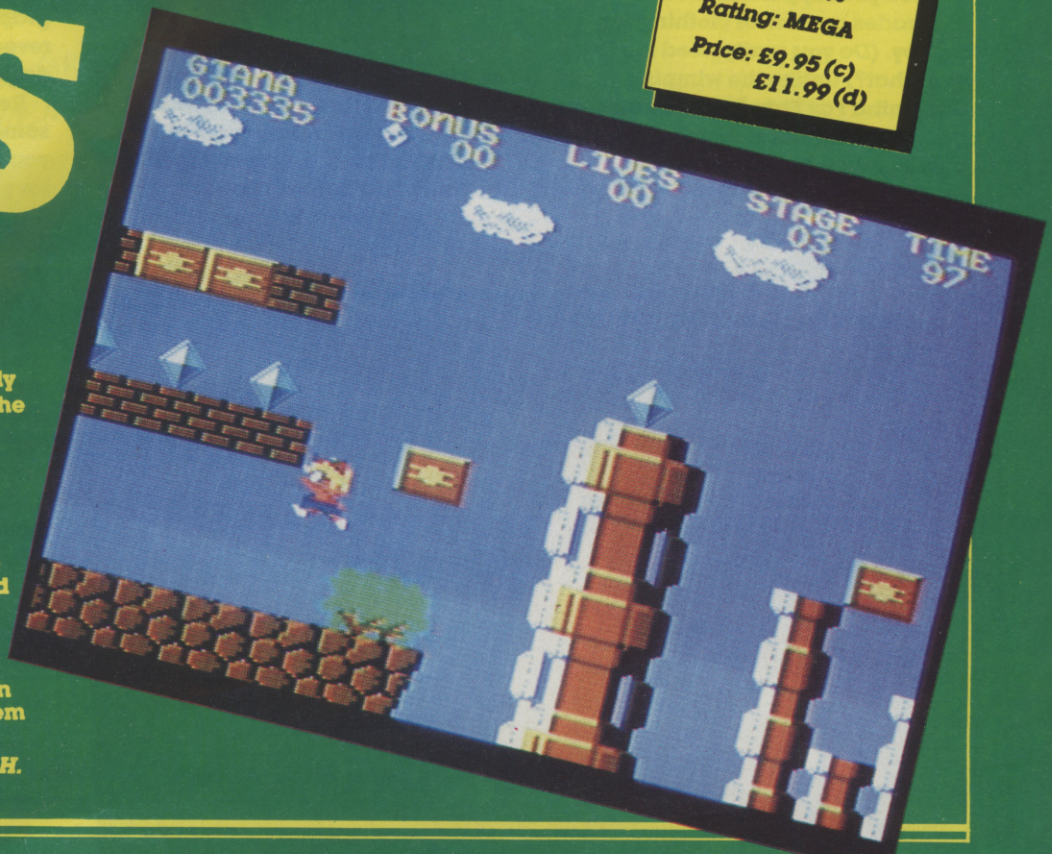
Giana ers

US Gold

Graphics: 66%
Sound: 63%
Playability: 84%
Overall: 81%

Rating: MEGA

Price: £9.95 (c)
£11.99 (d)



background, broken up with the occasional mushroom or clump of bushes. Some more imagination could have gone into the design of the nasties, but they all look suitably alien. The bouncy tune playing in the background matches the overall joviality.

Pacland is one of my favourite games at the moment and Giana Sisters has a similar style; it is colourful, light-hearted and fun. Its simplicity means that at first it could seem a bit of a bore, but I can also see it lasting longer than most games. Giana Sisters is great as simple platform romp which is given a new depth with all those secret gem stashes.

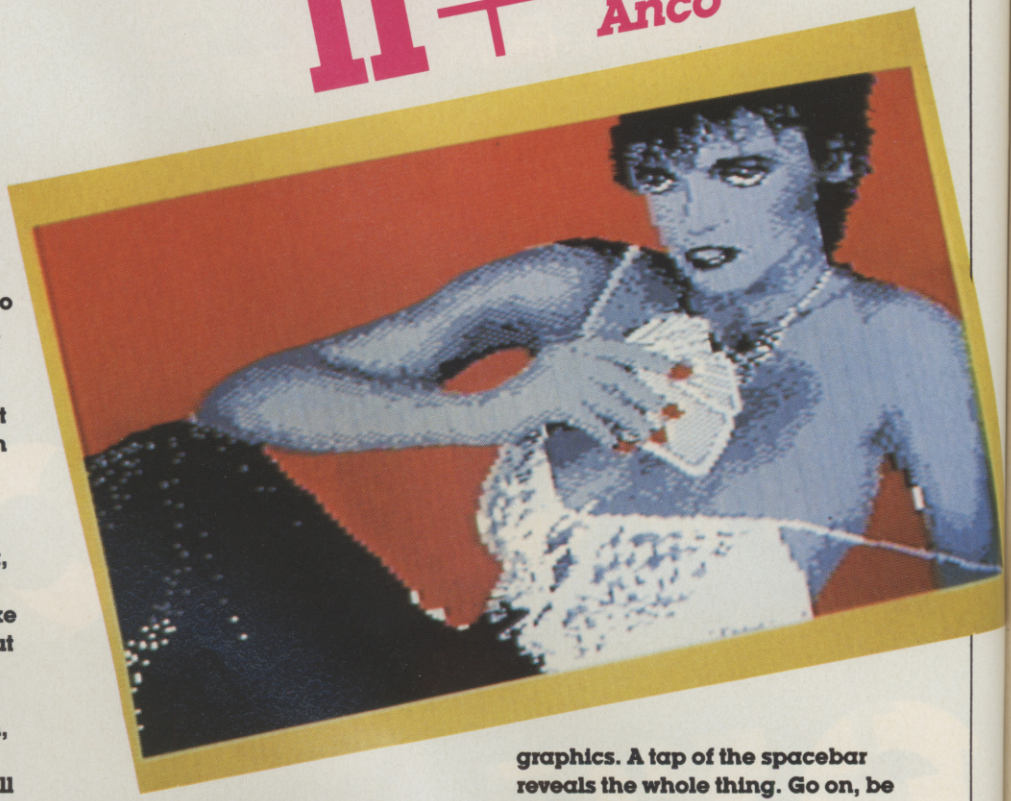
T.H.

+4

CRISP

STRIP POKER II+

Anco



Plus/4 owners must be getting pretty annoyed by the lack of new games for their machine. Games for the C16 are rare enough, but dedicated Plus/4 games are almost non-existent. No doubt Strip Poker II+ will raise an eyebrow or two – and set a lot of mahcines whirring.

Two girls, Donna and Sam have been digitised in a series of progressively revealing poses. Select with girl to play (there is one on each side of the tape) and get lucky. Both players start with $100. Your cards are dealt out for your perusal. Flicking through the options you bet, raise, call or drop depending on the situation. Both Sam and Donna make their decisions fairly realistically, but tend to drop if the stakes are high, making bluffing easy.

Once your opponent is out of cash, she trades an item of clothing for money. (Do you really need me to tell you what?) Unlike the wimpish Samantha Fox Strip Poker, these girls go all the way but remember, there is only so much detail you can reproduce in pixels! If you start slacking they will buy back their clothes, and if you actually fall behind, you will lose your own togs. Most of the time, a strip along the bottom of the screen shows your cards, modestly covering some of the graphics. A tap of the spacebar reveals the whole thing. Go on, be daring!

Response to the joystick is sometimes a shade sluggish and if you are slow it makes your decisions for you. There is almost no sound in the game, just a single effect as the cards are dealt. As in most strip poker games, there is a lot of fun to be had to begin with, but its appeal might be considered on the short lived side. It is a good bit of fun while it lasts and very likely to be the sort of relaxing challenge that you could enjoy at the end of a hard day alien bashing. Anyway, I can hardly see many Plus/4 users turning their noses up at much these days and Strip Poker II+ fits the bill, so give it a go.

T.H.

Graphics: 79%
Sound: 19%
Playability: 71%
Overall: 72%
Rating: CRISP
Price: £7.95

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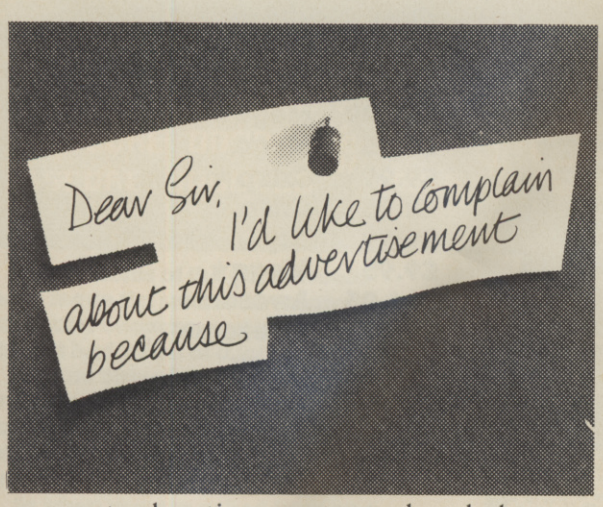

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Charts

Chart chatter

When we pick 'em, they stay picked ... Ocean's Target Renegade heads the honours as THE BIG ONE for the second month running – and at this moment there doesn't seem anything to shift it as the most popular selling C64 game in the UK. With most software companies saving their potential hits, it could stay up there till Autumn – that is unless it is dethroned by Ocean's new entry at Number Two – We Are The Champions – a top class compilation. Grand Slam's acclaimed Pacland creeps up another couple of places to Three, and Epyx/U.S. Gold grabs fourth spot with Impossible Mission II. I.O. looks to be running out of steam but manages to climb one place to Five and Venom Strikes Back from Gremlin mounts four places to Six.

Though everybody says it goes quiet in the Summer, the Budgets ae still hitting the big numbers with Steve Davis Snooker hanging in there at Number One for the second month on the trot. But there is a new one in second spot – Alternative's Yogi Bear. And there are two fresh names at Four and Five: Shanghai Karate from Players and the ever popular ACE from Cascade now in Budget for the first time.

The Amiga Chart sees Melbourne House's ex-arcade smash AARGH! shoot in at the Top. Wizball is runner-up for the second month but Mirrorsoft comes in at Three (where else?) with the 3 Stooges. Microdeal's Leatherneck is a strong Number Four. Last month's Number One Obliterator holds onto the Number Five place.

GAME TITLE	COMPANY	PRICE	RATING
C64			
1 Target Renegade	Ocean	£9.95	Mega
2 We are the Champions	Ocean	£12.99	Mega★
3 Pacland	Grand Slam	£9.95	Mega
4 Impossible Mission 2	Epyx	£9.99	Crisp ★
5 I.O.	Firebird	£8.95	Crisp
6 Venom Strikes Back	Gremlin	£9.99	Iffy
7 10 Great Games	Gremlin	£9.95	Mega★
8 Project Stealth Fighter	Micropose	£14.95	Awesome
9 Platoon	Ocean	£9.95	Awesome
10 Cybernoid	Hewson	£9.99	Mega
Budgets			
1 Steve Davis Snooker	CDS		
2 Yogi Bear	Alternative★		
3 Way of the Exploding Fist	Richochet		
4 Shanghai Karate	Players ★		
5 Ace	Cascade★		
Amiga			
1 Aaargh!	Melbourne House	£19.99★	
2 Wizball	Ocean	£24.95	
3 The 3 Stooges	Mirrorsoft	£29.99★	
4 Leatherneck	Microdeal	£19.99★	
5 Obliterator	Psygnosis	£24.95	

★ NEW ENTRY

C16

CRISP

AIRWOLF

Encore

Airwolf, as you may already know, is quite an old game, but is now being re-released by Encore. The original was issued in 1985 and written by Richard Wilcox, the first of the Elite-owning family to get into software.

The contents of the game would have made it a smash hit on any computer because, certainly at the time, it had a hell of a lot going for it.

You are Stringfellow Hawke, who is the only man in the world with any knowledge of the Airwolf, which is a billion dollar helicopter that everyone would love to get their hands on.

So when you are asked to go on a mission, it is to rescue five very important US scientists. After the hostages were taken they were held far into the Arizona desert, but they were hidden deep underground. You must use all of your skills to fly around the caverns and not smash into anything, or else this may cause damage to your helicopter (and end your game!).

Airwolf is equipped with all the firepower necessary to rescue the scientists but you must concentrate on your flying, hovering and shooting because there are lots of baddies who suddenly flash out to get you.

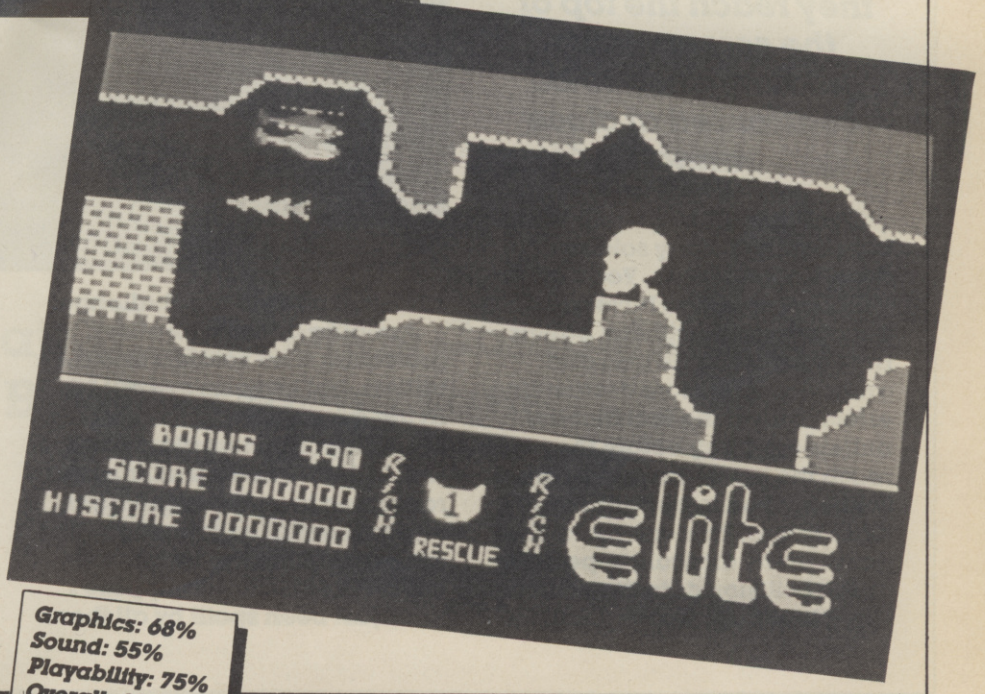
When you come to find a scientist you must hover and destroy a wall. This can be very tricky so you need exact control over your aircraft. Once you have a scientist safely aboard your aircraft you must then take him back to the safety of your base (which is the start of the game).

You continue to search the caverns until you find all five scientists, only then will you have completed the mission.

The game is very tricky and requires a steady hand, though there is time to think about it as loading seems to take forever. (Three years ago we stood *anything*!) It does not have a title tune which could have easily been added, and also the sound effects while the game is playing only reflect the Airwolf as it flies through the caverns. When you shoot something there is a rather dull noise. It is clear they could have put something more like an explosion if they had updated the game from the original version.

Overall, Airwolf is good. It keeps you interested, entertained and I enjoyed playing it even with the limitation of the C16. My advice to you would be to get a copy, you will certainly find it is worth playing – at a budget price too!

E.B.

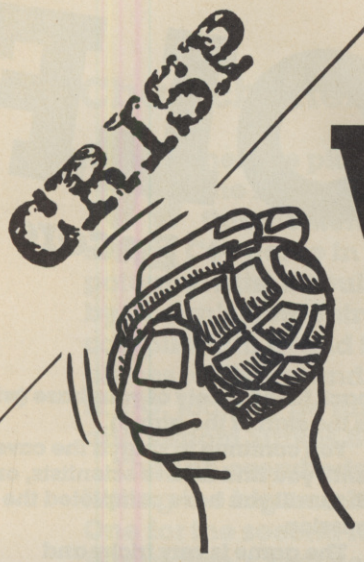


Graphics: 68%
Sound: 55%
Playability: 75%
Overall: 60%

Rating: CRISP

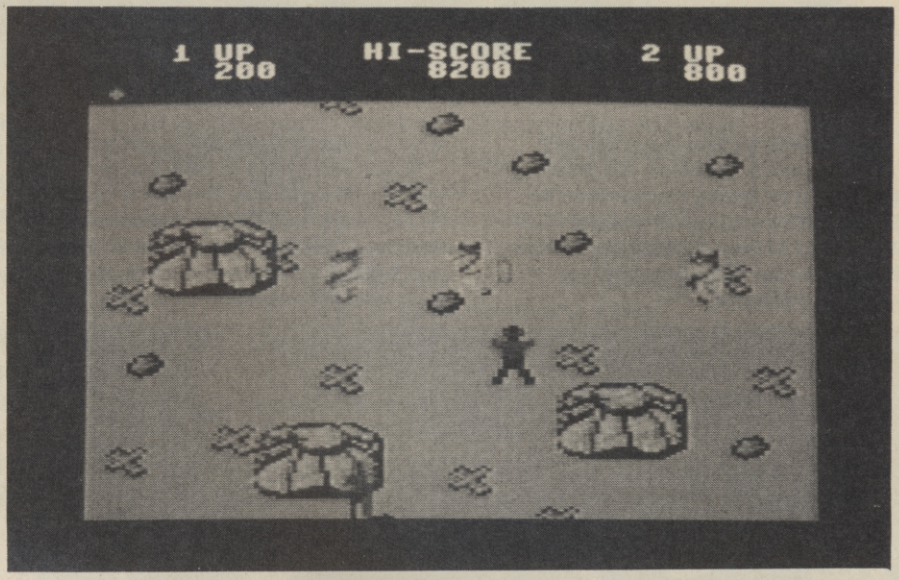
Price: £1.99

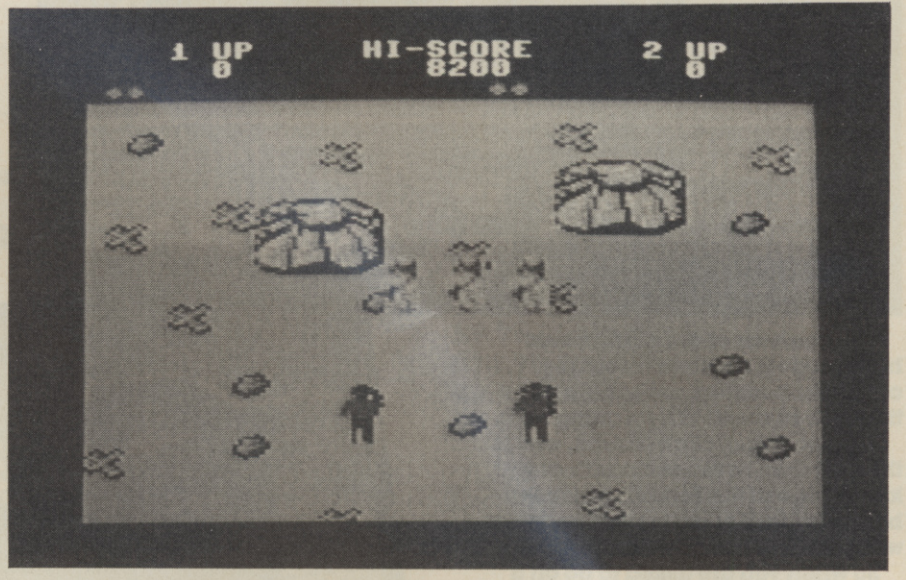
C16



IKARI WARRIORS

Elite





New releases are petering out on the C16 front, so when Ikari Warriors turned up it was met with considerable interest.

Its arcade uncle was a progression from the Commando theme, adding two major advances: a joystick that allowed walking in one direction whilst facing another, and a simultaneous two player game. On the C16 you can expect to find the two player mode, but understandably the rotational movement has been omitted.

"Due to the fact that the bullets die away before they reach the top of the screen, most soldiers need to be confronted at close range"

Small groups of smooth moving but slightly flickery soldiers descend the screen. You and your sunburnt comrade have two basic defences against them: bullets from your machine gun and grenades for a more devastating effect. Due to the fact that the bullets die away before they reach the top of the screen, most soldiers need to be confronted at close range. This can make the game pretty difficult, especially as the collision detection can be very biased against you, but, of course, it adds to the challenge.

Jumping into a tank offers protection from soldiers and their bullets, but keep an eye out for flying grenades and the fuel level. Ikari Warriors plays fairly well but is let down a little by the restriction to up/down/left/right movements in the tank (no diagonals) and the inaccurate collision detection. I suppose I have just been spoilt by all these brilliant Amiga games recently. For those confined to the limited spaces of the C16, I am sure it may be one of the best ever. Take a look.

Price: £7.99 (c)

B.V.

Graphics: 65%
Sound: 59%
Playability: 70%
Overall: 69%

Rating: CRISP

THE GREAT GIANA SISTERS

Top game of this month in the opinion of CCI's reviewers is US Gold's Great Giana Sisters. It was difficult to tear them away from these bouncing Italian girls. Addictivissimo! was the unanimous verdict. US Gold has given us lots of terrific goodies for a competition for CCI readers.

The winner will get two tickets to fly to Venice and spend a couple of days there, in a luxury hotel of course! (No, you can't go with the gorgeous Tracey of US Gold, you have to pick your own partner!) and the 25 runners-up get a copy of the 64 or Amiga version (it's coming on the Amiga, too,) of this hit created by Rainbow Arts.

All you have to do is answer the following:

1. ***Which brothers were the prequel to (or the inspiration for) Giana Sisters?***
2. ***Which brothers were supposed to have founded Rome?***
3. ***What kind of energy powers the buses in Venice?***
4. ***Name the most famous square in Venice***
5. ***In which country was Giana Sisters programmed?***
6. ***How many Giana Sisters are there?***

Answers on a postcard please (with 64 or Amiga preference) by September 15th 1988 to:

CCI's Great Giana Sisters Competition,
40 Bowling Green Lane,
LONDON
EC1R 0NE

C64

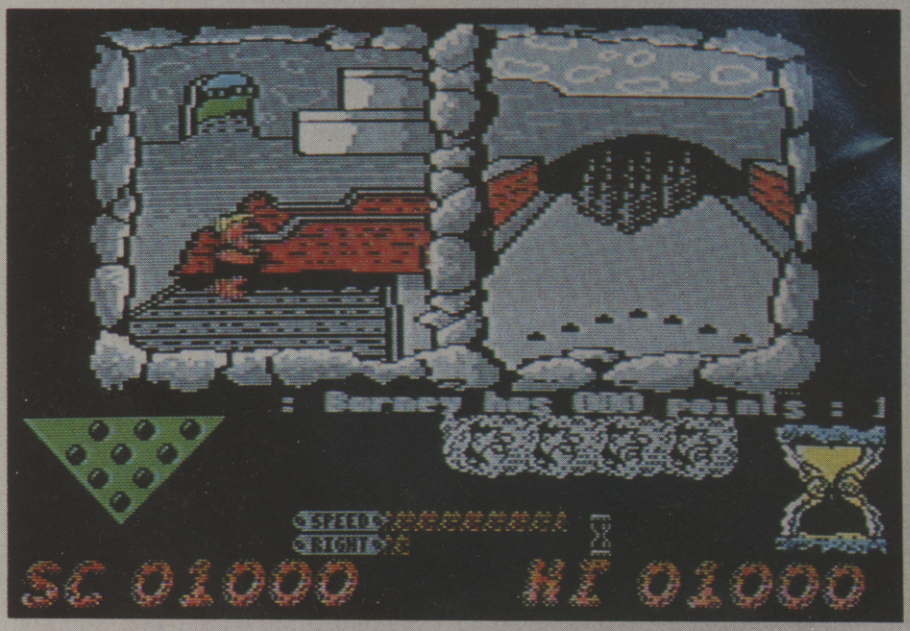
IFFY

THE FLINTSTONES

Grandslam

A game released first on the Amiga is bound to have a hard time of convincing gamers when it appears in its 64 format. The Flintstones has had just such a hard time convincing me that its 64 version is exciting enough to recommend to you.

Viewers of the cartoon series will know that Fred Flintstone's favourite pastime is bowling. He and Barney were planning a boy's night out down at the local alley until Fred was collared by Wilma, his wife, and ordered to paint the living room wall. SO begins the first of four sections of the game.



Under the threat of a tight time limit, the whole wall must be painted with a squirrel-like animal for a brush. Refilling the brush is a regular chore, as is keeping baby Pebbles in her pen. Leave her out too long and she scrawls all over the wall. Some people find painting a wall to be rather tedious, and I have to say I would agree with them, especially with irritating infants getting in the way.

"Pebbles has gone walkies from her pen and Fred catches up with her at the top of a construction site"

Get that done in time and you hop in the car, bound for the bowling alley. A short sequence of screens show a side-on view of a rocky road. Jumping the rocks will get you to the alley before it closes. If you hit one, the wheel falls off, so get out and get jacking!

Once at the bowling alley you finally get your game. Two windows are used to show front and side views of Fred and the alley. The 3D effect could have been more realistic, as could the weak pin fall graphics. At least the programmers have speeded up the pin replacement sequence from the Amiga version, but it still plays with as little real interest.

On arriving home, Fred finds Wilma in a panic. Pebbles has gone walkies from her pen and Fred catches up with her at the top of a construction site. This calls for platform negotiation skills as you casually stroll around the catwalks and girders.

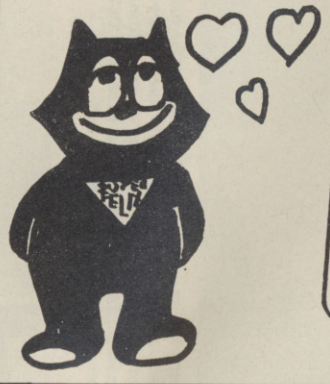
When I played The Flintstones on the Amiga, I found its graphics eye catching but there was too little to the game to make it really appealing. On the 64, its graphics are very blocky, even compared to the first Flintstones game on the 64, and the gameplay is identical to that of the Amiga. At least the Amiga version had its graphics to fall back on, but unfortunately this 64 version has neither exciting gameplay nor 16-bit graphics to attract the player, probably the best thing about it is the Flintstones theme tune. Better luck next time, Fred.

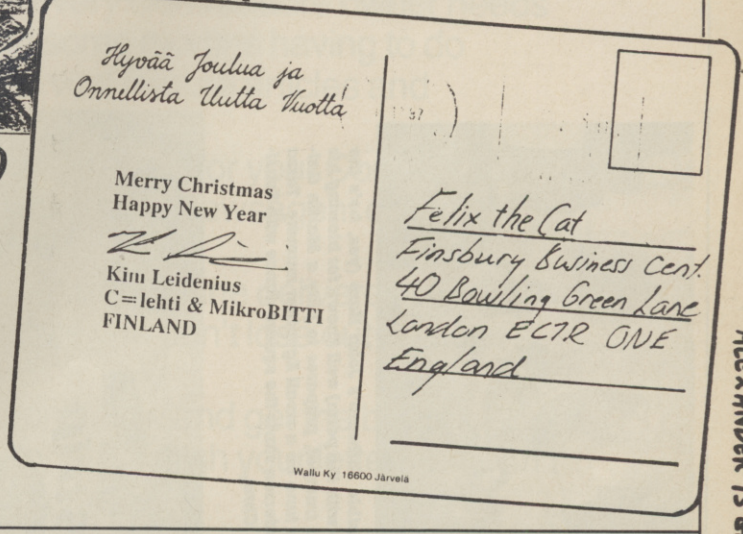
B.V.

Graphics: 41%
Sound: 63%
Playability: 43%
Overall: 44%
Rating: IFFY
Price: £9.95 (c)
£14.95 (d)

Super Felix

I am only a beginner. I got my first computer in 1863 from a stallholder in Petticoat Lane called Charlie Babbage. I am having trouble understanding some pages of CCI, which I first began to read on a liner between Hong-Kong and Shanghai in 1923. They, not the towns in China, but the pages in CCI are strangely called Hogan's Hints. I thought Hogan was an Australian crocodile hunter who made a living swallowing peculiar beer in odd places. I don't see why CCI should be employing him to tell us innocent computer users to 'Poke' about inside our computers to get "infinite lives". When I was girl, 'Pokeing' was not mentioned in respectable magazines like "Men Only" and "infinite lives" was a heathen Buddhist (or was it Hindu) idea. Frankly, if my grandfather Lord Clive of India Sinclair, hadn't left me his lifetime subscription to CCI (wasn't a comment in Andy Moss's adventure column the cause of the Indian Mutiny?) I would think carefully about changing to the more discreet "Commodore Owner's Guide to Leather and Bondage Weekly", edited by that charming Deana Barrett of Wimpole Street and recommended to me by Antonia ("Swish") Hetherington. As for Hogan and his Poking, I am told he arrives late every day with bloodshot eyes. We all know that the devil finds work for idle hands.
Yours sorrowfully,
Annie Sinclair-Scrolls





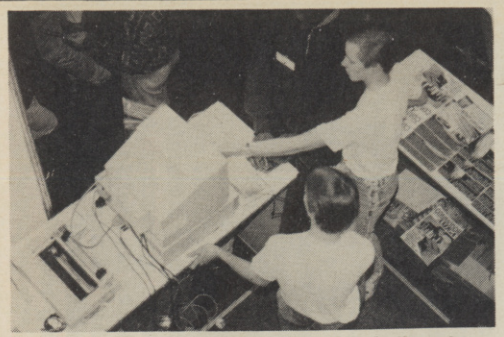
And in Finland they have a population full of charming, intelligent and talented folk. They must be, they love me madly as per this great postcard. And Hyvaa Joulua ja onnellista Uutta Vuotta to you too, my friends the Finns!

Dear Annie,
Please don't be alarmed at Hogans Hinting. "Poking" is just computer jargon for "Bonkin" which as everyone knows who reads Mrs Ian Bennett's Diaries (also called "Amiga Use") is banging the top of the monitor with your fist to get a sharper picture, (or to express your disappointment at "Star Trek" computer game). If you are bonking correctly, you should actually hear the sound "bonk" each time your fist (try soaking them in salt water it hardens them) smashes down. If you don't bonk frequently enough, your monitor can get neurotic and start thinking it is called Bruce and the marketing director of Codemasters. There was a monitor like that at my school but that is a different story . . . As for "Infinite Lives", you mustn't take computer life so seriously or you will start believing that all these games that claim to be the "ultimate" really are the last. And you'll start using up all the infinite lives too quickly. Ha! Ha! Almost every game these days claims that it is the "ultimate" and we hope most of them are. What "infinite lives" means, in the Toy Organ sense, is that games reviewers can actually get to the end of a game which, of course, otherwise they never would. For example, two brothers called Bignell have just reached the end of Boulderdash I, a man called Harry Penncil has almost completed Manic Miner and Mr Hogan himself (shamefully drunk on the Amber Nectar as usual and sleeping it off (with n'importe qui) under the photcopier) has recently proudly announced reaching the final screens of Clumbsey Colin. None of these – pardon me for using the word – reviewers could have done this without infinite lives and none of them, so far as I know, is Buddhist. By the way, I wouldn't if I were you, get involved with girls called "Swish", they generally turn out to be deliciously bad influences. I knew one myself, a few years ago, called "Swish" Hirsch. I believe CRL are making an adult game about her interesting and profitable career called "You've Broken My Electronic Hearts" or "Wearing Plus Fours makes you look over C16". It will be programmed in Yorkshire by the late Clement C. Ripper. Lady Amanda Barry, now appearing in 'You Make Me Feel So Jung' at the Hampstead Palladium, will play the leading role.

RICO SAYS - SORRY I HAVEN'T BEEN HOME SUE!

ALEXANDER IS GREAT SAYS NATASHA! GOOD LUCK AT WAG SAYS GRACE....

Super Felix-at the NOT-THE-COMMODORE SHOW!



The Horgan Boys pose to show they both go to the same hairdresser and use the same clour tint. The father, Paul Hogan, (in the black tracksuit) is tanned from his time in Australia filming Crocodile Dundee III.

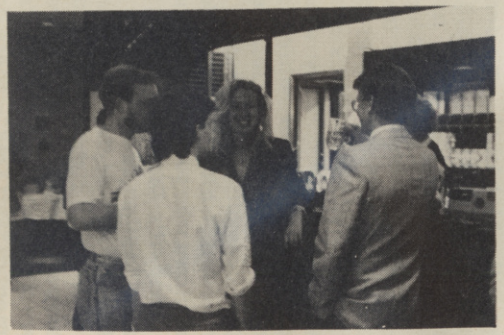
Sensible Software's John Hare (yes, he's the one with the perm) well known for blowing his own trumpet, prepares to play a Martin Galway tune on a small Egyptian mummy. Tessa Sanderson starts the square dance with Sensible Chris.

You get a free drum kit with every Commodore Stand.

You may think you live in the UK. Wrong. This is proof it's now called Amigaland. (Show Joke: What would we have if everyone were called Rachel? Answer: A Multirachel society.)

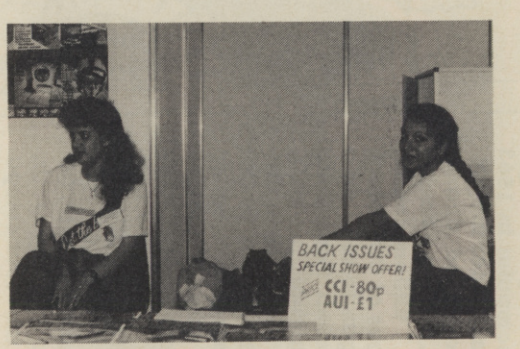
Anco's Karen left for the US to stand for the President (or even lie for him). Her replacement is Gill (I love to walk my dogs at 4am) Stephens. They posed for the exclusive CCI photo. Gill is the two on the left.

Some of the best Educational Software at the Show.



Bette Midler (née the ex-Lesley Headlines) of E.A. visited the Show briefly to get three Oskars – but none of the gentlemen would give us their surnames or reveal their faces.

Robtek's generosity astounds. Not only do they award diamonds to their competition winners but people too. Lady Sarah Armstrong-Jones (remember Marvin Gaye's song about her 'Sexual 'Ealing'?) collects her prizes – 2 diamonds and 2 Commodore owners and she only came to find out if the Commod-



It seems hard to be a back issue at 21 but maybe you'll pay 80p for Niki (right) and cheer her up. Teresa the Comp Princess (left) says she's a current CCI and still full price. Anyone got £1.20 to lend me?

COMMODORE

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prizes – 2 diamonds and 2 Commodore owners and she only came to find out if the Commod-

WIN A WALKMAN!

Elite's C16 Competition

IKARI WARRIORS and AIRWOLF

We have got reviews of Elite's acclaimed Ikari Warriors and Airwolf now for the C16-Plus/4. Both of Elite's games have already had a big success on other machines and the C16 world will no doubt be delighted to play them too.

Our C16 fan, Errol Barker, certainly had fun with them and rates them very highly. Elite are giving the comp winner a Walkman personal stereo radio, Elite and Ikari Warriors tee shirts and a terrific selection of Elite games. 20 runners-up will get tee-shirts and Elite games.

All you have to do is give the answers to:

1. ***Name another Elite C16 game***
2. ***Name an Elite boxing game***
3. ***Who wrote Airwolf?***
4. ***Who is the boss of Elite?***
5. ***Name a coin-op conversion that appeared on the C16 (not a game you've mentioned before in the other answers!)***

Answers on a postcard please by September 15th 1988 to:

CCI/Elite Competition
40 Bowling Green Lane
LONDON
EC1R 0NE
(include your tee-shirt size!)

C64

IFFY

DESOLATOR

US Gold

Whilst on the lookout for coin-ops to convert to home computers, the US Gold talent scouts picked out Halls Of Kairos. As the game was not really famous, they decided to give its 64 version a new name: Desolator, which has an agreeably cold, steely, menacing ring.

Kairos is a mean old character who has imprisoned a bunch of kids. Your task is to punch your way through his castle, rescuing the kids along the way. This translates to a Commando style game with machine gun fire replaced with fists. Starting in the gardens, you are immediately assaulted by a gang of Kairos' minions. They swarm around you and drain your strength. Unwary adventurers could be caught out by the landmines and knife throwing knights in armour.

Circles on the walls can be punched to free children. Other symbols give extra energy, smart bombs, missiles, invulnerability and so on. Barrels roll around squidging anyone in their path and glowing crosses act as teleports. Reach the end of a level and four sprites cause problems by spitting fireballs at you. Punch them all enough times and the next level loads in. There is a noticeable difference between the first and second levels, going from the gardens into the castle, but from then on it seems nothing much changes. Its graphics are blocky and ill-defined throughout, with poor animation to match.

It is generally thought that vertically scrolling games work best with a tall playing area, and the opposite goes for horizontal scrollers. This is proven in Desolator by its wide screen and consequent lack of warning of oncoming dangers, emphasised by the fact that the screen scrolls only when the player is very near the top of the visible area. Punching the baddies is not as convincing as it might be; thump an enemy and he just slides right off the screen. Some rather unspectacular sound effects can be heard over the simple background music.

The potential in Desolator is there for a great game. If the playing area and sprites had been bigger, with more appealing animation and character, it could have been excellent. As it is, its looks lack appeal and while there is some, there is not enough outstanding play to compensate. Fans of its origin will no doubt be interested, but others should take a close look before buying.

T.H.

Graphics: 42%
Sound: 48%
Playability: 43%
Overall: 46%
Rating: IFFY

Price: £9.99 (c)
£11.99 (d)

DATEL ELECTRONICS

256K SUPEROM EXPANDER

- Now you can select from any of 8 32K EPROMs instantly.
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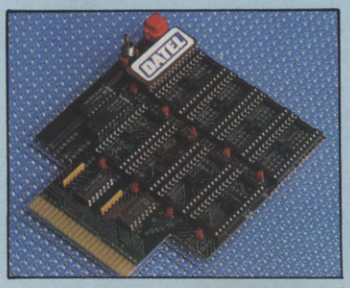
- Accepts 2764/27128/27256 EPROMs.
- On board unstoppable reset.



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- Resets even so called "unstoppable" programs.
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- Fits in cartridge port.
- Simply plug in.

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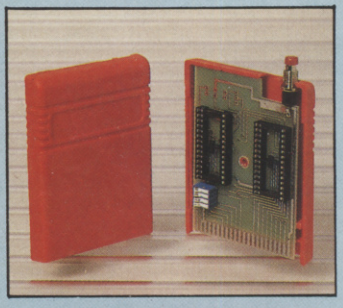

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- Accepts 2 x 8K EPROMs.
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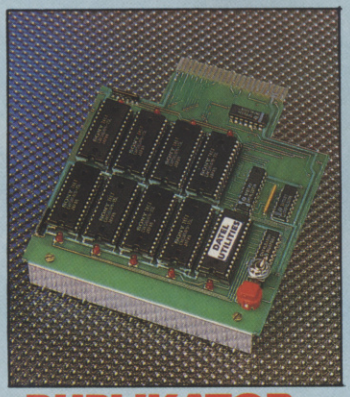

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- Full disk error check in eight seconds.
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- A must for clubs, user groups etc. How else can you copy over 250 disks and hour for less than £100.
- Comes complete with on/off switch and reset button.
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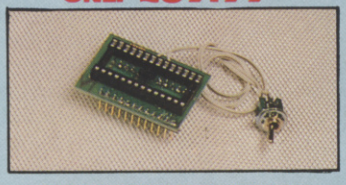

4 WAY KERNAL BOARD

- This board fits in place of the kernal in your 64 and accepts a 16K or 32K replacement kernal giving 2 or 4 different operating systems.
- Just flick the switch supplied to select between systems.
- This is a carrier only – ready to accept your own chip.
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- Full instructions.
- Fitted in minutes.
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- Burst Nibbler is actually a two part system – a software package **and** a parallel cable to connect the 1541/1570/1571 to 64/128 (state type).
- What gives Burst Nibbler its power? Conventional nibblers have to decode the data from the disk before it can transfer it using the serial bus – when non standard data is encountered they are beat. Burst Nibbler transfers data as raw GCR code via the parallel cable without the need to decode it so you get a perfect copy of the original.

- Will nibble upto 41 tracks.
- Copy a whole disk in under 2 minutes.
- Full instructions.
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- Fitted in minutes – no soldering usually required.
- Full or ½ tracks.
- No need to buy parallel cable if you have Disk Demon/Dolphin etc.
- Cable has throughbus extension for other add ons.

- Whether to choose FastHack'em or Burst Nibbler? Fast Hack'Em is unbeatable value as an "all-rounder" – with nibblers, 1 or 2 drive copy, format, file copy, 1571 copy etc. etc., so if you have a more general requirement perhaps FastHack'Em is for you. Burst Nibbler is a pure nibbler second to none, for the reasons stated. So if it's just making backups you are interested in, there is no other product to beat it.

ONLY £24.99 COMPLETE
SOFTWARE ONLY £12.99 CABLE ONLY £14.99

BURST NIBBLER PARAMETERS DISK

- Burst Nibbler is the most powerful disk copier available – but there are still a few programs with very complicated protected, which makes it impossible to nibble copy. The Burst Nibbler Parameter Disk contains routines to copy individual programs.
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- The disk contains over 100 parameters including many of the latest titles. Many of the titles can already be straight nibbled by burst nibbler – but can be used with the "Super Serial Nibbler" program (supplied) by users with drives that will not support parallel copier cables such as Excelerator, Oceanic etc.
- Simple to use – just nibble the disk then run the individual parameter for that program and the special routine will produce a perfect working copy – in some cases it will even de-protect it!
- Comes complete with "Super Serial Nibbler" program for users who can't fit a parallel copier such as Burst Nibbler to their drive (Excelerator, Oceanic etc)., not as fast as Burst Nibbler but when used in conjunction with parameters its formidable!
- Remember – this disk is by no means a must for Burst Nibbler owners since it already copes with over 90% of Software. But for those who want everything this is it. Also for none Burst Nibbler owners you get a "Super Serial Nibbler" which together with the parameters is a powerful utility.

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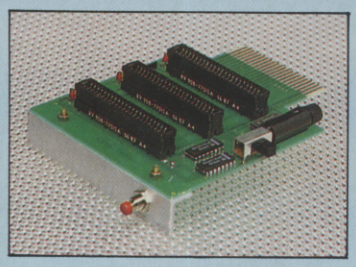

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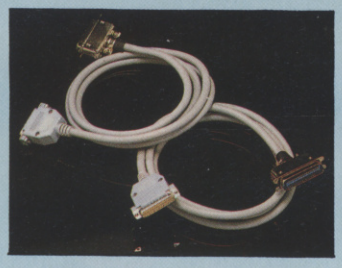

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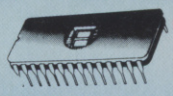

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Turbo Rom II is a replacement for the actual kernal inside your 64. It provides superfast load/save routines.

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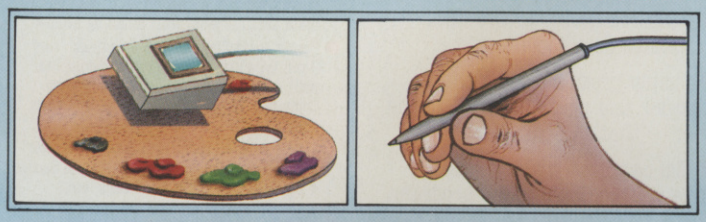

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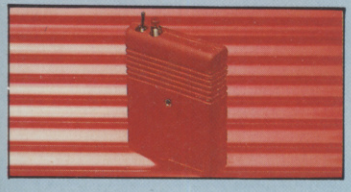

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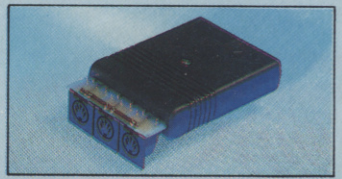

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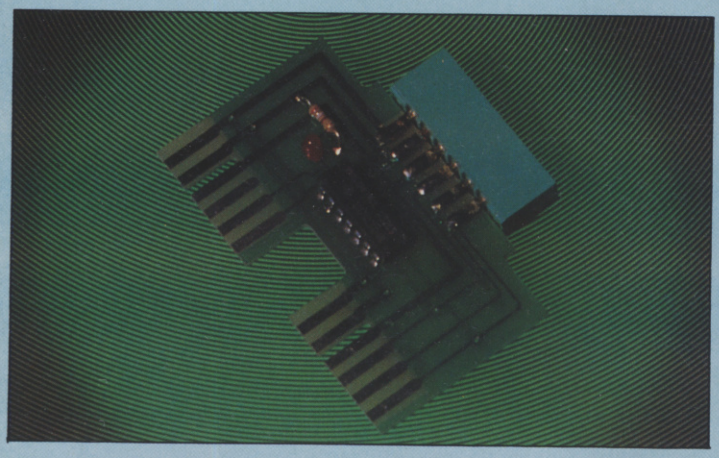

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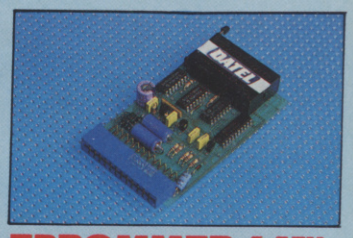

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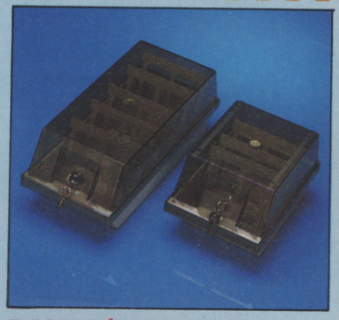

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Phone Book

Tony Gould

C-64

This is a simple to use phone file index, that is VERY fast to load, (full info in text NOTE THAT THERE ARE TWO PROGS!!! LISTING 1 AND LISTING 2).

Type in listing 1 and 2, and run listing 2 to generate the machine code file. You then load and run listing 1 to activate the phone book. NOTE Disk Use only.

```
1 BECAUSE MANY OF THE CONTROL AND SPECIAL FUNCTION CHARACTERS
2 THAT COMMODORE USE ARE PRINTED AS GRAPHICS THEY HAVE BEEN CONVERTED
3 INTO A MORE READABLE FORM, SOME EXAMPLES ARE GIVEN BELOW.
4 IF YOU SEE A NUMBER AFTER THE CODE, THAT MEANS THE CHARACTER
5 IS REPEATED THAT NUMBER OF TIMES; IE [SP5] MEANS TYPE 5 SPACES.
6 :
7 :
10 PRINT"[SP3]"    :REM THREE SPACES
20 PRINT"[BLK]"      :REM BLACK
30 PRINT"[LBLU]"      :REM LIGHT BLUE
40 PRINT"[CD3]"   :REM THREE CURSOR DOWNS
50 PRINT"[RED]"     :REM RED
60 PRINT"[CTLH]"      :REM CONTROL H
```

LISTING ONE

```
10 REM *** DO NOT USE WITH FINAL CARTRIDGE ***
100 IFPEEK(49155)=24THENPOKE53247,22:SYS49152
110 IFPEEK(53247)=22THEN140
120 PRINT"[CLR]LOADING PHONE CODE"
130 LOAD"PHONE CODE",8,1
140 END
```

LISTING TWO

```
1000 REM READ IN DATA
1010 ME=49152:LI=1170
1020 CK=0:CT=0
1030 READ X
1040 IF X=-1 THEN 1110
1050 IF X>255 THEN PRINT"DATA RANGE ERROR
     IN LINE ";LI:END
1060 POKE ME,X
1070 CK=CK+X:ME=ME+1:CT=CT+1
1080 IF CT<>8 THEN 1030
1090 READ CS:IF CK<>CS THEN PRINT
     "CHECKSUM ERROR IN LINE ";LI:END
1100 PRINT"[CLR]";LI:LI=LI+10:GOTO 1020
1110 SYS50718:REM SAVES PHONE CODE FILE
1120 END
1130 REM ME= START OK MEMORY POINTER
1140 REM CK=CALCULATED CHECKSUM
1150 REM CT=DATA COUNTER
1160 REM CS=CHECKSUM FROM DATA
1170 DATA 076,099,196,024,032,240,255,169,1091
1180 DATA 000,133,253,164,253,177,251,201,1432
1190 DATA 255,240,036,201,254,208,021,165,1380
1200 DATA 034,208,004,169,013,208,013,056,0705
1210 DATA 032,240,255,024,160,020,032,240,1003
1220 DATA 255,076,047,192,032,210,255,230,1297
1230 DATA 253,208,216,230,252,208,212,096,1675
1240 DATA 133,253,173,000,160,133,254,173,1279
1250 DATA 001,160,133,255,160,000,177,254,1140
1260 DATA 164,253,145,254,056,165,254,233,1524
1270 DATA 001,133,254,176,002,198,255,165,1184
1280 DATA 254,197,251,165,255,229,252,176,1779
1290 DATA 227,096,132,253,164,253,177,251,1553
1300 DATA 160,000,145,251,230,251,208,002,1247
1310 DATA 230,252,165,251,205,000,160,208,1471
1320 DATA 235,165,252,205,001,160,208,228,1454
1330 DATA 096,160,206,169,192,144,004,160,1131
1340 DATA 003,169,160,133,252,169,000,133,1019
1350 DATA 251,177,251,200,208,002,230,252,1571
1360 DATA 201,255,208,245,202,208,242,132,1693
1370 DATA 251,096,173,002,208,009,003,141,0883
1380 DATA 002,208,173,000,221,041,252,009,0906
1390 DATA 001,141,000,221,169,132,141,136,0941
1400 DATA 002,096,160,000,169,032,153,000,0612
1410 DATA 132,153,000,133,153,000,134,153,0858
1420 DATA 000,135,136,208,241,096,255,084,1155
1430 DATA 069,076,069,080,072,079,078,069,0592
1440 DATA 032,068,073,082,069,067,084,079,0554
1450 DATA 082,089,032,066,089,032,084,079,0553
1460 DATA 078,089,032,071,079,085,076,068,0578
1470 DATA 013,045,045,045,045,045,045,045,0328
1480 DATA 045,045,045,045,045,045,045,045,0360
1490 DATA 045,045,045,045,045,045,045,045,0360
1500 DATA 045,045,045,045,045,045,045,045,0360
1510 DATA 045,045,013,013,049,046,032,070,0313
1520 DATA 073,078,068,032,065,032,082,069,0499
1530 DATA 067,079,082,068,013,013,050,046,0418
1540 DATA 032,065,068,068,032,065,032,082,0444
1550 DATA 069,067,079,082,068,013,013,051,0442
1560 DATA 046,032,068,069,076,069,084,069,0513
1570 DATA 032,065,032,082,069,067,079,082,0508
1580 DATA 068,013,013,052,046,032,072,065,0361
1590 DATA 082,068,032,067,079,080,089,013,0510
1600 DATA 013,053,046,032,083,067,082,069,0445
1610 DATA 069,078,032,076,073,083,084,073,0568
```

```
1620 DATA 078,071,013,013,054,046,032,083,0390
1630 DATA 065,086,069,032,065,077,077,069,0540
1640 DATA 078,068,077,069,078,084,083,032,0569
1650 DATA 065,078,068,032,069,078,068,032,0490
1660 DATA 080,082,079,071,082,065,077,013,0549
1670 DATA 013,255,080,076,069,065,083,069,0710
1680 DATA 032,073,078,080,085,084,032,078,0542
1690 DATA 065,077,069,013,013,255,082,069,0643
1700 DATA 067,079,082,068,032,065,076,082,0551
1710 DATA 069,065,068,089,032,069,088,073,0553
1720 DATA 083,084,083,255,080,076,069,065,0795
1730 DATA 083,069,032,080,082,069,083,083,0581
1740 DATA 032,083,080,065,067,069,032,084,0512
1750 DATA 079,032,067,079,078,084,073,078,0570
1760 DATA 085,069,255,080,076,069,065,083,0782
1770 DATA 069,032,073,078,080,085,084,032,0533
1780 DATA 078,085,077,066,069,082,013,013,0483
1790 DATA 255,082,069,067,079,082,068,032,0734
1800 DATA 078,079,084,032,070,079,085,078,0585
1810 DATA 068,255,082,069,067,079,082,068,0770
1820 DATA 032,065,068,068,069,068,255,082,0707
1830 DATA 069,067,079,082,068,032,068,069,0534
1840 DATA 076,069,084,069,068,255,080,076,0777
1850 DATA 069,065,083,069,032,076,073,078,0545
1860 DATA 069,032,085,080,032,080,065,080,0523
1870 DATA 069,082,255,080,082,069,083,083,0803
1880 DATA 032,082,085,078,047,083,084,079,0570
1890 DATA 080,032,084,079,032,065,066,079,0517
1900 DATA 082,084,032,080,072,079,078,069,0576
1910 DATA 066,079,079,075,032,076,073,083,0563
1920 DATA 084,013,013,013,255,083,065,086,0612
1930 DATA 073,078,071,032,078,069,087,032,0520
1940 DATA 080,072,079,078,069,066,079,079,0602
1950 DATA 075,255,147,013,068,073,083,067,0781
1960 DATA 032,069,082,082,079,082,032,045,0503
1970 DATA 032,078,069,087,032,080,072,079,0529
1980 DATA 078,069,066,079,079,075,032,083,0561
1990 DATA 084,065,082,084,069,068,255,078,0785
2000 DATA 079,084,032,069,078,079,085,071,0577
2010 DATA 072,032,082,079,079,077,032,070,0523
2020 DATA 079,082,032,065,078,079,084,072,0571
2030 DATA 069,082,032,082,069,067,079,082,0562
2040 DATA 068,255,084,069,076,069,080,072,0773
2050 DATA 079,078,069,032,068,073,082,069,0550
2060 DATA 067,084,079,082,089,013,045,045,0504
2070 DATA 045,045,045,045,045,045,045,045,0360
2080 DATA 045,045,045,045,045,045,045,045,0360
2090 DATA 045,013,013,255,024,134,254,132,0870
2100 DATA 255,170,032,129,192,164,254,166,1362
2110 DATA 255,076,003,192,032,186,192,162,1098
2120 DATA 000,160,001,169,001,076,228,194,0829
2130 DATA 162,000,160,023,169,004,032,228,0778
2140 DATA 194,032,228,255,201,032,208,249,1399
2150 DATA 096,169,000,133,002,166,002,236,0804
2160 DATA 002,160,176,041,232,134,002,056,0803
2170 DATA 032,129,192,160,255,200,177,251,1396
2180 DATA 201,254,240,013,185,204,159,201,1457
2190 DATA 042,240,006,209,251,208,222,240,1418
2200 DATA 236,162,000,160,020,165,002,056,0801
2210 DATA 032,229,194,024,096,162,000,160,0897
2220 DATA 020,169,006,032,228,194,056,096,0801
2230 DATA 083,058,068,073,082,069,067,084,0584
2240 DATA 079,082,089,169,011,162,000,160,0752
2250 DATA 016,032,228,194,032,000,195,169,0866
2260 DATA 011,162,080,160,195,032,189,255,1084
2270 DATA 169,015,162,008,160,015,032,186,0747
2280 DATA 255,032,192,255,169,009,162,082,1156
2290 DATA 160,195,032,189,255,169,008,170,1178
2300 DATA 160,096,032,186,255,169,000,133,1031
2310 DATA 251,169,160,133,252,174,000,160,1299
2320 DATA 172,001,160,169,251,076,216,255,1300
2330 DATA 169,009,162,082,160,195,032,189,0998
2340 DATA 255,169,008,170,168,032,186,255,1243
2350 DATA 169,000,032,213,255,176,001,096,0942
2360 DATA 169,012,162,001,160,001,032,228,0765
2370 DATA 194,169,000,141,002,160,169,004,0839
2380 DATA 141,000,160,169,160,141,001,160,0932
2390 DATA 169,255,141,003,160,076,000,195,0999
2400 DATA 169,000,133,002,166,002,236,002,0710
2410 DATA 160,232,134,002,176,020,056,032,0812
2420 DATA 129,192,160,255,200,177,251,201,1565
2430 DATA 254,240,015,217,204,159,240,244,1573
2440 DATA 144,226,166,002,056,032,129,192,0947
2450 DATA 024,096,169,003,162,000,160,020,0634
2460 DATA 032,228,194,056,096,133,002,162,0903
2470 DATA 000,134,204,160,016,032,228,194,0968
2480 DATA 169,000,133,251,032,228,255,166,1234
2490 DATA 251,240,008,201,013,240,027,201,1181
2500 DATA 020,240,047,224,019,240,237,201,1228
2510 DATA 032,144,233,201,091,176,229,157,1263
2520 DATA 204,159,230,251,032,210,255,076,1417
2530 DATA 028,196,169,254,164,002,192,002,1007
2540 DATA 240,002,169,255,157,204,159,169,1355
2550 DATA 255,133,204,169,032,134,254,076,1257
2560 DATA 210,255,198,251,016,222,169,046,1367
2570 DATA 133,001,096,032,094,196,032,160,074d
2580 DATA 195,032,162,192,169,255,133,034,1172
2590 DATA 032,244,194,032,228,255,201,088,1274
2600 DATA 208,003,076,012,198,056,233,049,0835
2610 DATA 144,241,201,006,176,237,010,168,1183
2620 DATA 185,149,196,133,251,185,150,196,1445
2630 DATA 133,252,108,251,000,161,196,175,1276
2640 DATA 196,062,197,120,197,139,197,009,1117
2650 DATA 198,169,002,032,013,196,032,017,0659
2660 DATA 195,032,000,195,076,108,196,173,0975
2670 DATA 002,160,201,255,240,089,169,002,1118
2680 DATA 032,013,196,032,216,195,176,233,1093
2690 DATA 165,251,072,165,252,072,165,254,1396
2700 DATA 072,168,185,204,159,153,128,159,1228
2710 DATA 136,016,247,032,244,194,169,005,1043
2720 DATA 032,013,196,104,072,168,162,000,0747
2730 DATA 189,204,159,153,129,159,200,232,1425
2740 DATA 224,020,208,244,104,101,254,105,1260
2750 DATA 001,133,002,104,133,252,104,133,0862
2760 DATA 251,173,000,160,072,101,002,141,0900
2770 DATA 000,160,173,001,160,105,000,201,0800
2780 DATA 192,208,016,104,141,000,160,169,0990
2790 DATA 013,162,000,160,018,032,228,194,0807
2800 DATA 076,169,196,141,001,160,104,165,1012
2810 DATA 002,032,056,192,164,002,136,185,0769
2820 DATA 128,159,145,251,136,016,248,169,1252
2830 DATA 007,162,000,160,020,032,228,194,0803
2840 DATA 238,002,160,076,169,196,169,002,1012
2850 DATA 032,013,196,032,017,195,176,045,0706
2860 DATA 160,000,056,173,000,160,233,001,0783
2870 DATA 141,000,160,176,003,206,001,160,0847
2880 DATA 177,251,200,201,255,208,235,173,1700
2890 DATA 002,160,197,002,240,003,032,098,073d
2900 DATA 192,169,008,162,020,160,018,032,0761
2910 DATA 228,194,206,002,160,076,169,196,1231
2920 DATA 169,009,162,000,160,016,032,228,0776
2930 DATA 194,032,000,195,032,244,194,169,1060
2940 DATA 000,240,002,169,013,133,034,169,0760
2950 DATA 010,162,000,160,016,032,228,194,0802
2960 DATA 165,034,208,030,169,000,032,189,0827
2970 DATA 255,169,004,170,160,000,032,186,0976
2980 DATA 255,032,192,255,162,004,032,201,1133
2990 DATA 255,162,014,024,032,129,192,032,0840
3000 DATA 007,192,169,000,133,002,166,002,0671
3010 DATA 236,002,160,176,041,232,134,002,0983
3020 DATA 056,032,129,192,032,007,192,169,0809
3030 DATA 013,032,210,255,169,013,032,210,093d
3040 DATA 255,165,034,133,251,032,228,255,1353
3050 DATA 201,003,240,010,198,252,208,245,1357
3060 DATA 198,251,016,241,048,208,169,013,114d
3070 DATA 032,210,255,169,013,032,210,255,1176
3080 DATA 165,034,208,010,169,004,032,195,0817
3090 DATA 255,162,001,032,201,255,076,169,1151
3100 DATA 196,032,091,195,169,047,133,001,0864
3110 DATA 076,186,192,192,080,072,079,078,0955
3120 DATA 069,032,067,079,068,069,169,010,0563
3130 DATA 162,020,160,198,032,189,255,169,1185
3140 DATA 008,170,160,096,032,186,255,169,1076
3150 DATA 000,133,251,169,192,133,252,162,1292
3160 DATA 020,160,198,169,251,076,216,255,1345
3170 DATA-1
```

CUSTOMISE

C64

This program allows the user to specify the colours of the screen and also the start up message. This is done by making a copy of the rom in ram and then modifying it as required.

```
1000 PRINTCHR$(156):CLR:GOSUB1600
1010 PRINTTAB(7)"[CU4][REV][LGRN] PRESS SPACE-BAR TO BEGIN [OFF]"
1020 GETK$:IFK$=""THEN1020
1030 IFK$<>CHR$(32)THEN1020
1040 POKE53280,9:POKE53281,0
1050 PRINT"[CLR][PUR][REV][SP40][OFF]
1060 PRINT"[CU][REV][SP15]CUSTOMISING[SP14][OFF]
1070 PRINT"[CU][REV][SP40][OFF]
1080 PRINT"[CU][REV][SP11]BY G.W.SHELMERDINE[SP11][OFF]
1090 PRINT"[CU][REV][SP40][OFF]
1100 PRINT"[MGRY][CR2]PLEASE ENTER A [LGRN][REV] 31 CHARACTER HEADING [OFF][MGRY
]
1110 PRINT"[CD][CR10]INCLUDING ALL SPACES.
1120 PRINT"[CD2][WHT][SP4]..............................."
1130 INPUT"[CU2][CR2]";A$
1140 PRINT"[SP40]"
1150 IFLEN(A$)<>31THENPRINT"[CU5]":GOSUB1540:GOTO1050
1160 FORK=700TO740:READA:POKEK,A:NEXTK
1170 SYS 700
1180 PRINT"[CU2]"
1190 INPUT"[CR][WHT] BORDER COLOUR (0-15)[SP8]";E
1200 PRINT:IFE<0ORE>15THENPRINT"[CU3][LBLU][CR2][REV] (0-15) PLEASE [OFF][CU]":G
OSUB1580:GOTO1190
1210 INPUT"[CR][WHT] SCREEN COLOUR (0-15)[SP8]";S
1220 PRINT:IFS<0ORS>15THENPRINT"[CU3][LBLU][CR2][REV] (0-15) PLEASE [OFF]":GOSUB
1580:GOTO1210
1230 GOSUB1350
1240 INPUT"[CD][CR][WHT] SELECT TEXT COLOUR REQUIRED ";T
1250 PRINT"[CLR][CD10][WHT][CD][CR3]PLEASE WAIT - ALTERING KERNAL ROM"
1260 PRINT"[CR3]──────────────────────────────────────"
1270 FORX=1TO1500:NEXT
1280 POKE64982,229:POKE58677,T:POKE60633,E:POKE60634,S
1290 N=(58489-1)
1300 FORI=1TO(LEN(A$))
1310 POKEN+I,ASC(MID$(A$,I,1))
1320 NEXTI
1330 SYS 64738:END
1340 :
1350 PRINT"[PUR][REV]¦ BEST TEXT COLOURS WITH SELECTED SCREEN ¦"
1360 IFS=0THENPRINT"[CR3][REV]¦ 1,3,4,7,8,10,11,12,13,14 AND 15 ¦"
1370 IFS=1THENPRINT"[CR5][REV]¦ 0,2,4,5,6,9,11,12,14 AND 15 ¦"
1380 IFS=2THENPRINT"[CR12][REV]¦ 1,7,8 AND 10 ¦"
1390 IFS=3THENPRINT"[CR14][REV]¦ 0 AND 6 ¦"
1400 IFS=4THENPRINT"[CR15][REV]¦ 0 AND 1 ¦"
```

```
1410 IFS=5THENPRINT"[CR13][REV]¦0,1 AND 13¦"
1420 IFS=6THENPRINT"[CR12][REV]¦1,3,14 AND 15¦"
1430 IFS=7THENPRINT"[CR11][REV]¦0,2,9 AND 11¦"
1440 IFS=8THENPRINT"[CR11][REV]¦1,2,7 AND 9¦"
1450 IFS=9THENPRINT"[CR10][REV]¦1,7,8 10 AND 15¦"
1460 IFS=10THENPRINT"[CR13][REV]¦2 AND 9¦"
1470 IFS=11THENPRINT"[CR8][REV]¦0,1,7,12,13 AND 15¦"
1480 IFS=12THENPRINT"[CR9][REV]¦0,1,11 AND 15¦"
1490 IFS=13THENPRINT"[CR11][REV]¦0,5 AND 11¦"
1500 IFS=14THENPRINT"[CR12][REV]¦0,1,3 AND 6¦"
1510 IFS=15THENPRINT"[CR11][REV]¦0,1,2,6,11 AND 12¦"
1520 RETURN
1530 :
1540 IFLEN(A$)>31THENPRINT"[CD3][CR4][LRED][REV] THIRTYONE CHARACTERS EXCEEDED [
WHT]"
1550 IFLEN(A$)<31THENPRINT"[CD3][CR4][LRED][REV][SP4]INSUFFICIENT CHARACTERS[SP4
][WHT]"
1560 FORZ=1TO1500:NEXTZ:RETURN
1570 :
1580 PRINT"[CLR][CR31][SP2][CU]":RETURN
1590 :
1600 PRINTCHR$(147)
1610 VA=1024:CC=55296-VA:GM=36864
1620 DIMG(10),VM(9,7),L$(26)
1630 L=VA+204
1640 FORM=1TO7
1650 FORN=1TO9
1660 VM(N,M)=L+N
1670 NEXTN
1680 L=L+40
1690 NEXTM
1700 G(0)=32:G(1)=160:G(2)=98:G(3)=226
1710 G(4)=223:G(5)=105:G(6)=95:G(7)=233
1720 G(8)=97:G(9)=225:G(10)=100
1730 L$(1)="3711110104111"
1740 L$(2)="3111112314545"
1750 L$(3)="3711610011001"
1760 L$(4)="3111110014115"
1770 L$(5)="3111112311001"
1780 L$(6)="3111112301000"
1790 L$(7)="3711610011011"
1800 L$(8)="3111102301111"
1810 L$(9)="11111"
1820 L$(10)="3002600011115"
1830 L$(11)="3111107601541"
1840 L$(12)="3111100010001"
1850 L$(13)="41111416071501111"
1860 L$(14)="41111416004161111"
1870 L$(15)="3711610014115"
1880 L$(16)="3111110104150"
1890 L$(17)="47116100141110005"
1900 L$(18)="3111110164154"
1910 L$(19)="3713112311215"
1920 L$(20)="3100011111000"
1930 L$(21)="3111600011111"
1940 L$(22)="41160004600751150"
1950 L$(23)="4111600750046115"
1960 L$(24)="3167104601541"
1970 L$(25)="3160002111500"
1980 L$(26)="3107117511501"
1990 :
2000 POKE53280,0:POKE53281,0
2010 PRINTCHR$(15)
2020 FORN=1TO24
2030 PRINT"[SP39]"
2040 NEXTN:PRINT"[CD4]"
```

```
2050 H=4
2060 PRINT
2070 X$="CUSTOMISE":::X=VA+123:GOSUB2130
2080 X$="START"    :::X=VA+325:GOSUB2130
2090 X$="UP"       :::X=VA+348:GOSUB2130
2100 X$="SCREEN"   :::X=VA+528:GOSUB2130
2110 GOTO1010
2120 :
2130 FORJ=1TOLEN(X$)
2140 K=ASC(MID$(X$,J,1))-64:L=2
2150 FORM=XTOX+VAL(LEFT$(L$(K),1))-1
2160 FORN=MTOM+(H-1)*40STEP40
2170 POKEN,G(VAL(MID$(L$(K),L,1)))
2180 L=L+1
2190 NEXTN
2200 NEXTM
2210 X=M+1:NEXTJ
2220 RETURN
2230 :
2240 DATA 169,160,133,252,169,224,133,254
2250 DATA 169,000,133,251,133,253,168,177
2260 DATA 251,145,251,177,253,145,253,200
2270 DATA 208,245,230,252,230,254,208,239
2280 DATA 120,165,001,041,253,133,001,088,096
```

SKEET SHOOTING C64

Skeet shooting is a very well programmed game, yet it is very simple to play and also quite addictive. There are two parts to the program. The first listing, LISTING 1, is the machine code generator. Type this in and save it.
LISTING 2 is the main game control program. Likewise, type this in and save it. To play the game load and run LISTING 1 then load and run LISTING 2.
The machine code is checksumed to help avoid typing mistakes, but KEEP THE SAME LINE NUMBERS and you will get a correct ERROR IN LINE xxxx report that will point directly to the bad line.

BOTH SKEET SHOOTING and CUSTOMISE PROGRAMS HAVE BEEN FORMATTED FOR EASY ENTER, so watch out for the [ ] codes

eg
[SP2] means type 2 spaces
[CD3] type 2 cursor downs
[CLR] type the clear screen char
[HOM] type the cursor home char

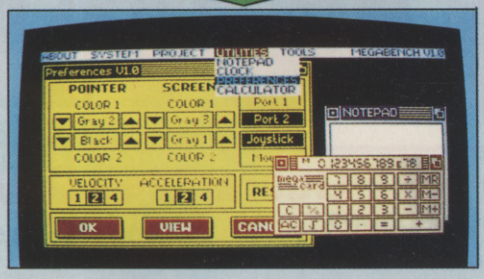
```
1000 PRINT"[CLR][YEL][CD12][CR5]PLEASE WAIT, INITIALIZING !"
1010 X=49152:LN=1210
1020 GOSUB 2760
1030 V=53248:C=12288:G=0
1040 POKE56334,PEEK(56334)AND254
1050 POKE1,PEEK(1)AND251
1060 FORN=0TO511
1070 POKEC+N,PEEK(V+N):NEXT
1080 POKE1,PEEK(1)OR4
1090 POKE56334,PEEK(56334)OR1
1100 POKE53272,(PEEK(53272)AND240)OR12
1110 REM
1120 X=12288+520 :LN=2310
1130 GOSUB 2760
1140 REM
1150 M=12992:G=0
1160 X=M:LN=2500 :GOSUB2760
1170 M=M+64:X=M:LN=2590: GOSUB2760
1180 M=M+64:X=M:LN=2680: GOSUB2760
1190 END
1200 REM *** M/C ***
1210 DATA 169,007,141,021,208,169,100,141,0956
1220 DATA 000,208,169,205,141,001,208,096,1028
1230 DATA 173,052,003,141,003,208,173,053,0806
1240 DATA 003,141,005,208,173,057,003,141,0731
1250 DATA 002,208,173,058,003,141,004,208,0797
1260 DATA 173,000,220,041,008,201,008,240,0891
1270 DATA 026,173,169,002,201,001,208,003,0783
1280 DATA 076,245,194,173,000,208,024,105,1025
1290 DATA 001,201,255,208,003,032,228,194,1122
1300 DATA 141,000,208,173,000,220,041,004,0787
1310 DATA 201,004,240,026,173,169,002,201,1016
1320 DATA 000,208,003,076,027,195,173,000,0682
1330 DATA 208,056,233,001,201,000,208,003,0910
1340 DATA 032,010,195,141,000,208,173,000,0759
1350 DATA 220,041,002,201,002,240,015,173,0894
1360 DATA 001,208,024,105,001,201,230,208,0978
1370 DATA 002,169,229,141,001,208,173,000,0923
1380 DATA 220,041,001,201,001,240,018,173,0895
1390 DATA 001,208,056,233,001,201,050,208,0958
1400 DATA 002,169,051,141,001,208,076,193,0841
1410 DATA 192,173,000,220,041,016,201,016,0859
1420 DATA 240,003,032,040,193,169,001,141,0819
1430 DATA 039,208,173,054,003,201,001,208,0887
1440 DATA 008,173,055,003,201,001,208,001,0650
1450 DATA 096,169,000,234,105,001,201,160,0966
1460 DATA 240,003,076,195,192,173,059,003,0941
1470 DATA 024,105,001,141,059,003,205,060,0598
1480 DATA 003,240,003,076,028,192,169,000,0711
1490 DATA 141,059,003,173,054,003,201,001,0635
1500 DATA 240,026,173,061,003,201,001,208,0913
1510 DATA 003,076,177,194,173,057,003,024,0707
1520 DATA 105,001,201,255,208,003,032,160,0965
1530 DATA 194,141,057,003,173,055,003,201,0827
1540 DATA 001,240,026,173,062,003,201,001,0707
1550 DATA 208,003,076,211,194,173,058,003,0926
1560 DATA 056,233,001,201,000,208,003,032,0734
1570 DATA 194,194,141,058,003,076,028,192,0886
1580 DATA 169,000,141,005,212,141,006,212,0886
1590 DATA 141,004,212,169,015,141,024,212,0918
1600 DATA 169,005,141,005,212,169,009,141,0851
1610 DATA 006,212,169,129,141,004,212,169,1042
1620 DATA 025,141,001,212,173,054,003,201,0810
1630 DATA 001,208,003,076,230,193,169,000,0880
1640 DATA 141,167,002,141,168,002,173,000,0794
1650 DATA 208,205,002,208,144,002,176,022,0967
```

```
1660 DATA 173,002,208,056,237,000,208,201,1085
1670 DATA 007,176,008,169,001,141,167,002,0671
1680 DATA 076,148,193,076,230,193,173,000,1089
1690 DATA 208,056,237,002,208,201,007,176,1095
1700 DATA 008,169,001,141,167,002,076,148,0712
1710 DATA 193,076,230,193,173,001,208,205,1279
1720 DATA 003,208,144,002,176,022,173,003,0731
1730 DATA 208,056,237,001,208,201,007,176,1094
1740 DATA 008,169,001,141,168,002,076,202,0767
1750 DATA 193,076,230,193,173,001,208,056,1130
1760 DATA 237,003,208,201,007,176,008,169,1009
1770 DATA 001,141,168,002,076,202,193,076,0859
1780 DATA 230,193,173,167,002,201,001,240,1207
1790 DATA 003,076,230,193,173,168,002,201,1046
1800 DATA 001,240,003,076,230,193,169,001,0913
1810 DATA 141,054,003,032,115,194,173,055,0767
1820 DATA 003,201,001,208,001,096,169,000,0679
1830 DATA 141,167,002,141,168,002,173,000,0794
1840 DATA 208,205,004,208,144,002,176,020,0967
1850 DATA 173,004,208,056,237,000,208,201,1087
1860 DATA 007,176,008,169,001,141,167,002,0671
1870 DATA 076,040,194,096,173,000,208,056,0843
1880 DATA 237,004,208,201,007,176,008,169,1010
1890 DATA 001,141,167,002,076,040,194,096,0717
1900 DATA 173,001,208,205,005,208,144,002,0946
1910 DATA 176,020,173,005,208,056,237,001,0876
1920 DATA 208,201,007,176,008,169,001,141,0911
1930 DATA 168,002,076,090,194,096,173,001,0800
1940 DATA 208,056,237,005,208,201,007,176,1098
1950 DATA 008,169,001,141,168,002,076,090,0655
1960 DATA 194,096,173,167,002,201,001,240,1074
1970 DATA 001,096,173,168,002,201,001,240,0882
1980 DATA 001,096,169,001,141,055,003,032,0498
1990 DATA 123,194,096,169,205,141,249,007,1184
2000 DATA 076,128,194,169,205,141,250,007,1170
2010 DATA 169,000,141,019,212,141,020,212,0914
2020 DATA 141,018,212,169,009,141,019,212,0921
2030 DATA 169,003,141,020,212,169,129,141,0984
2040 DATA 018,212,169,005,141,015,212,096,0868
2050 DATA 169,001,141,061,003,173,016,208,0772
2060 DATA 024,105,002,141,016,208,169,000,0665
2070 DATA 096,173,057,003,024,105,001,141,0600
2080 DATA 057,003,201,088,240,003,076,004,0672
2090 DATA 193,096,169,001,141,062,003,173,0838
2100 DATA 016,208,056,233,004,141,016,208,0882
2110 DATA 169,255,096,173,058,003,056,233,1043
2120 DATA 001,141,058,003,201,000,240,003,0647
2130 DATA 076,028,192,096,169,001,141,169,0872
2140 DATA 002,173,016,208,024,105,001,141,0670
2150 DATA 016,208,169,000,096,173,000,208,0870
2160 DATA 024,105,001,141,000,208,201,064,0744
2170 DATA 208,005,169,063,141,000,208,076,0870
2180 DATA 075,192,169,000,141,169,002,173,0921
2190 DATA 016,208,056,233,001,141,016,208,0879
2200 DATA 169,254,096,173,000,208,056,233,1189
2210 DATA 001,141,000,208,201,020,208,005,0784
2220 DATA 169,021,141,000,208,076,110,192,0917
2230 DATA 169,000,141,057,003,169,088,141,0768
2240 DATA 058,003,169,000,141,054,003,141,0569
2250 DATA 055,003,141,061,003,141,062,003,0469
2260 DATA 173,169,002,201,001,208,005,169,0928
2270 DATA 005,076,086,195,169,004,141,016,0692
2280 DATA 208,169,204,141,249,007,141,250,1369
2290 DATA 007,096,-1,0103
2300 REM *** SC GRAPHS ***
2310 DATA 056,056,248,120,056,056,056,056,0704
```

```
2320 DATA 056,056,056,056,056,124,124,255,0783
2330 DATA 205,199,044,165,239,118,208,097,1275
2340 DATA 085,148,106,175,084,040,084,187,0909
2350 DATA 001,007,031,015,127,127,127,255,0690
2360 DATA 001,003,007,007,103,127,255,255,0758
2370 DATA 001,001,001,003,007,015,127,255,0410
2380 DATA 001,003,007,015,031,031,127,255,0470
2390 DATA 003,007,031,031,063,063,127,255,0580
2400 DATA 000,000,000,007,063,127,127,255,0579
2410 DATA 001,001,006,199,255,255,255,255,1227
2420 DATA 192,240,248,248,252,252,254,255,1941
2430 DATA 128,128,192,192,192,240,254,255,1581
2440 DATA 192,224,240,248,254,254,255,255,1922
2450 DATA 255,255,255,255,255,255,255,255,2040
2460 DATA 001,007,031,059,051,027,023,015,0214
2470 DATA 192,248,200,190,234,104,158,255,1581
2480 DATA 000,000,102,102,024,024,000,000,-1,0252
2490 REM *** SPRITES ***
2500 DATA 000,060,000,001,195,128,006,000,0390
2510 DATA 096,024,000,024,032,000,004,032,0212
2520 DATA 000,004,064,000,002,064,024,002,0160
2530 DATA 128,024,001,128,024,001,128,126,0560
2540 DATA 001,128,024,001,128,024,001,064,0371
2550 DATA 024,002,064,000,002,032,000,004,0128
2560 DATA 032,000,004,024,000,024,006,000,0090
2570 DATA 096,001,195,128,000,060,000,-1, 0480
2580 REM
2590 DATA 000,000,000,000,000,000,000,000,0000
2600 DATA 000,000,000,000,000,000,000,000,0000
2610 DATA 000,000,000,000,000,000,255,000,0255
2620 DATA 003,186,192,014,174,176,003,170,0918
2630 DATA 192,000,255,000,000,000,000,000,0447
2640 DATA 000,000,000,000,000,000,000,000,0000
2650 DATA 000,000,000,000,000,000,000,000,0000
2660 DATA 000,000,000,000,000,000,000,-1, 0000
2670 REM
2680 DATA 128,000,004,064,000,004,032,000,0232
2690 DATA 118,024,128,000,024,064,000,000,0358
2700 DATA 032,192,000,016,192,056,016,000,0504
2710 DATA 008,028,028,000,028,016,000,028,0136
2720 DATA 000,012,002,000,012,001,000,016,0043
2730 DATA 049,048,000,033,016,000,000,000,0146
2740 DATA 000,000,000,007,000,000,128,006,0141
2750 DATA 000,224,006,003,224,000,003,-1, 0460
2760 REM MC/POKER
2770 REM X=POKE ADDRESS, LN = START LINE
2780 CT=1:CK=0
2790 READ A:CT=CT+1:IF A=-1 THEN 2870
2800 IF CT=10 THEN 2840
2810 IF A>255 THEN 2860
2820 CK=CK+A
2830 POKEX,A:X=X+1:GOTO2790
2840 IF CK<>A THEN PRINT "ERROR IN LINE";LN:END
2850 LN=LN+10:PRINT"[CLR]";LN: GOTO 2780
2860 PRINT "DATA RANGE ERROR IN LINE";LN:END
2870 READ A:IF A<>CK THEN PRINT "ERROR IN LINE ";LN:END
2880 RETURN
```

```
1000 SK=3:TG=2:HN$(1)="LEE REEVES":HN$(2)="FEARLESS FRED":HN$(3)="CHRIS MISSED"
1010 HN$(4)="DESPERATE SID":HN$(5)="SLIPPERY SAM":HN$(6)="POT SHOT PETE"
1020 HS(1)=25:HS(2)=23:HS(3)=21:HS(4)=19:HS(5)=17:HS(6)=15
1030 POKE54277,0:POKE54278,0:POKE54276,0
1040 POKE54296,15:POKE54277,0:POKE54278,240:POKE54276,33
1050 POKE53280,0:POKE53281,0
1060 PRINT"[CLR][CD5][CR9][WHT]! [PUR]SKEET SHOOTING [WHT]!
```

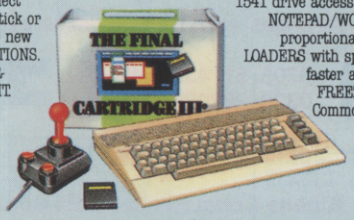
KEEP IT SIMPLE!



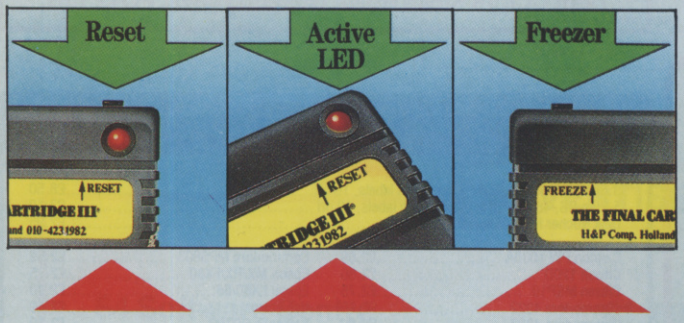
THE FINAL CARTRIDGE III

A POWERFUL 64K ROM BASED OPERATING SYSTEM FOR THE C64 AND C128

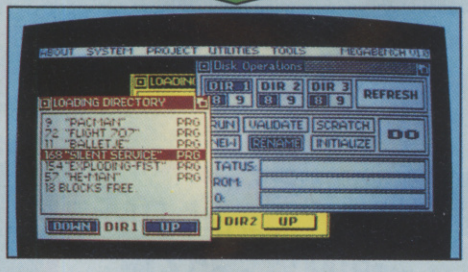
Easy to use WINDOWS and PULL DOWN MENUS allow you to select with either mouse, joystick or keyboard more than 60 new COMMANDS and FUNCTIONS. Various PRINTER-INTERFACES, a BASIC TOOL-KIT.



Comfortable ML MONITOR including 1541 drive access and sprite-editing, a NOTEPAD/WORDPROCESSOR with proportional characters, 2 DISK LOADERS with speeds, up to 15 times faster and a state of the art FREEZER. Transform your Commodore into a complete new - AMIGA LOOK ALIKE - system.



WINDOWS



THE FINAL CARTRIDGE III

The high-resolution bit mapped windows are selected from a menu bar. An unlimited number of windows can be open on the screen at the time. The windows can be freely moved on the screen.

The following windows are already implemented in ROM:

PREFERENCE WINDOW
Selects: mouse port, joystick port, mouse speed, screen colours, pointer clours, keyboard click, keyboard repeat.

CALCULATOR
Complete simulation of a LCD-calculator. Input either with mouse, joystick or keyboard. The numeric key-pad of the C128 can be used in C64-mode.

NOTE PAD
Easy to use wordprocessor with proportional characters enables you to store and print small notes, letters, etc.

DIRECTORY WINDOWS
Enables you to open directories from different disks and drives, sort and print directories.

DISK WINDOWS
Load, Run, Rename, Validate, Scratch, Initialize, Fast format disks.

TAPE WINDOW
Activates fast and normal modes.

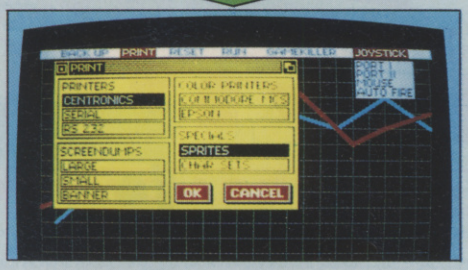
PRINTER WINDOWS
Select different printers, such as Commodore serial, Centronics, RS 232, Colour printers.

REQUESTER WINDOWS

DISC BASED USER WINDOWS

CLOCK
Real Time Clock, with Alarm.

FREEZER MENU



THE FINAL CARTRIDGE III

Innovative hardware, combined with smart software, allow you to freeze and continue every well-known C64-program.

Freezer options include:

CENTRONICS/SERIAL/RS 232 SCREENDUMPS
● Full A4 printing ● Variable printsize ● Colour printing ● Sprite printing ● Reverse printing ● Colour changes.

GAMEKILLER
● Kills sprite to sprite ● and/or sprite to background collision ● Can be started at any point in your game.

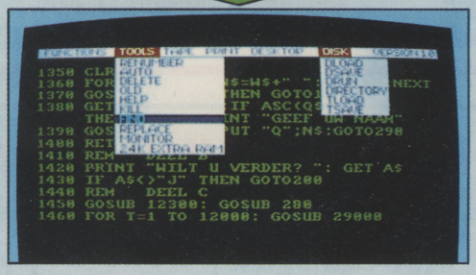
AUTO FIRE
● Transforms a normal joystick to an advanced auto fire engine.

JOYSTICK PORT CHANGER
● Never blow up your computer again by changing joystick ports while the C64 is running.

BACK UPS
● Disk to disk ● Tape to disk ● Disk to tape ● Back up files are packed and reloadable without the Final Cartridge III ● 60K in 15 sec. (disk) ● Exits to Monitor or Basic.

ML MONITOR
Comfortable ML monitor.
Does not reside in memory.
Functions include:
● Scrolling up and down ● 64K ROM/RAM access ● Sprite editor ● Character editor ● Drive monitor ● Fast loading and saving ● Printer driver.

PULL DOWN MENU



THE FINAL CARTRIDGE III

Almost all commands and functions that are not activated by windows can be selected from a menu bar, which appears on top of the screen after pressing the fire button, either in Basic or from the freezer. The following Basic Toolkit and keyboard extra's are included:

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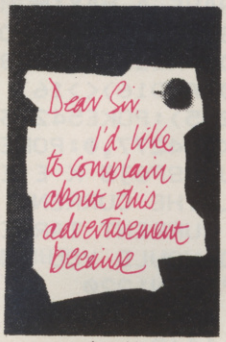

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1070 PRINT"[CD2][CR11][GRN]BY LEE REEVES"
1080 PRINT"[CD2][SP12][YEL]INSTRUCTIONS"
1090 PRINT"[SP12]------------"
1100 PRINT"[CD][LGRY]ATTEMPT TO SHOOT AS MANY SKEETS AS"
1110 PRINT"[CD]POSSIBLE WITH YOUR JOYSTICK IN PORT 2."
1120 PRINT"[CD]YOU HAVE A MAXIMUM OF 30 SKEETS TO TRY"
1130 PRINT"[CD]AND SHOOT.[SP2]GOOD LUCK !!!"
1140 PRINT"[CD][LRED]PRESS FIRE BUTTON !!!"
1150 IF ((PEEK(56320)AND16)<>16) THEN 1170
1160 NT=INT(RND(1)*255):POKE54273,NT:GOTO 1150
1170 POKE54296,0:POKE54277,0:POKE54278,0:POKE54276,0
1180 PRINT"[CD2][BLU][SP6]S K E E T[SP2]S H O O T I N G"
1190 PRINT"[CD3][YEL]THE CURRENT SKILL LEVEL = "SK
1200 PRINT"[CD2]THE CURRENT TARGET SPEED = "TG
1210 PRINT"[CD2][RED]WOULD YOU LIKE TO CHANGE THIS ? (Y/N)"
1220 GET A$:IF A$=""THEN1220
1230 IF A$<>"Y" AND A$<>"N" THEN 1220
1240 IF A$="N" THEN 1430
1250 PRINT"[CD][YEL]1=IMPOSSIBLE...2=HARD...3=NORMAL"
1260 PRINT"[CD]4=EASY...5=LIKE A SNOWFLAKE"
1270 PRINT"[CD2][BLU]PLEASE ENTER NEW LEVEL (1-5)..."
1280 GET SK$
1290 PRINTTAB(30)"[CU][GRN]▒"
1300 PRINTTAB(30)"[CU][WHT]▒"
1310 IF SK$<>"" THEN PRINTTAB(30)"[CU][CYN]"SK$:GOTO 1330
1320 GOTO 1280
1330 SK=VAL(SK$)
1340 IF SK<1 OR SK>5 THEN 1270
1350 PRINT"[CD]1=FAST...2=MEDIUM...3=SLOWISH"
1360 PRINT"[CD2][BLU]PLEASE ENTER NEW SPEED (1-3)..."
1370 GET TG$
1380 PRINTTAB(30)"[CU][GRN]▒"
1390 PRINTTAB(30)"[CU][WHT]▒"
1400 IF TG$<>"" THEN PRINTTAB(30)"[CU][CYN]"TG$:GOTO 1420
1410 GOTO 1370
1420 TG=VAL(TG$)
1430 IF TG<1 OR TG>3 THEN 1360
1440 IF TG=1 THEN GT=160:GOTO 1470
1450 IF TG=2 THEN GT=200:GOTO 1470
1460 GT=255
1470 POKE828,SK:POKE49351,GT
1480 PRINT"[CLR][CD12][SP13][PUR] GET READY"
1490 FORT=1TO2000:NEXT
1500 PRINT"[CLR]":POKE53280,3:POKE53281,6:GOSUB 1980
1510 V=53248:POKE2040,203
1520 POKEV+28,6:POKEV+40,0:POKEV+41,0:POKEV+38,0:POKEV+37,0:SYS49152:POKE681,0
1530 H=0:S=0
1540 SYS49968
1550 N=INT(RND(1)*4)+1
1560 IF N=1 THEN POKE820,0:GOTO 1600
1570 Y=INT(RND(1)*145)+60
1580 POKE820,Y:S=S+1
1590 IF N=3 THEN POKE821,0:GOTO 1620
1600 Y=INT(RND(1)*145)+60
1610 POKE821,Y:S=S+1
1620 POKEV+21,7
1630 SYS49168
1640 POKEV+21,1
1650 IF PEEK(822)=1 THEN H=H+1
1660 IF PEEK(823)=1 THEN H=H+1
1670 IF S>30 THEN POKE53269,0:H=H-1:GOTO 1690
1680 GOTO 1540
1690 POKE53280,0:POKE53281,0:POKE53272,21
1700 PRINT"[CLR][CD12][SP10][WHT]YOU HIT "H" SKEETS"
1710 FORT=1TO2000:NEXT
1720 FOR G=1 TO 6
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1730 IF H>HS(G) THEN I=G:GOTO 1760
1740 NEXT G
1750 IF I=0 THEN 1780
1760 FOR J=6 TO G STEP-1 :HN$(J+1)=HN$(J):HS(J+1)=HS(J):NEXT J
1770 HS(I)=H
1780 Z=6:PRINT"[CLR][CD2][SP13][LGRN]HALL OF FAME"
1790 FOR H=1TO6:PRINT"[CD2][BLU]"H")":NEXT
1800 H=1:PRINT"[HOM][CD2]"
1810 IF H=I THEN PRINT"[CD2]":GOTO 1830
1820 PRINTTAB(5)"[CD2][LRED]"HN$(H)
1830 H=H+1
1840 IF H>Z THEN 1860
1850 GOTO 1810
1860 IF I=0 THEN 1930
1870 PRINT"[HOM][CD23]"TAB(12)"[CYN]ENTER YOUR NAME"
1880 PRINT"[HOM][CD2]";
1890 FOR J=1 TO I:PRINT"[CD2]":NEXT J
1900 INPUT"[YEL][CR4]";HN$(I)
1910 IF LEN(HN$(I))>15 THEN HN$(I)=LEFT$(HN$(I),15)
1920 I=0:GOTO 1780
1930 PRINT"[HOM][CD2]":FORH=1TO6:PRINTTAB(20)"[CD2][GRN]"HS(H)
1940 NEXT
1950 PRINT"[CD][PUR][SP12]PUSH FIRE BUTTON"
1960 IF ((PEEK(56320)AND16)<>16) THEN 1030
1970 GOTO 1960
1980 REM DRAW SCREEN
1990 POKE53272,29
2000 PRINT"[SP40]";
2010 PRINT"[SP40]";
2020 PRINT"[SP40]";
2030 PRINT"[SP40]";
2040 PRINT"[SP40]";
2050 PRINT"[SP40]";
2060 PRINT"[SP11][WHT]┐├──●[SP24]";
2070 PRINT"[SP10][WHT]─┬──●[SP3][BLK]▁[SP6]▁[SP3]▁[SP8]";
2080 PRINT"[SP11][MGRY]┐●──●[BLK]▁ ▁[SP2]▁[WHT]─●┐●[SP9]";
2090 PRINT"[SP15][BLK]▁[SP2]▁ ▁[SP3]▁[SP16]";
2100 PRINT"[SP17][BLK]▁ ▁[SP2]▁[SP17]";
2110 PRINT"[SP40]";
2120 PRINT"[SP40]";
2130 PRINT"[SP13][WHT]└┘[SP16][GRN]┐●─●[SP3]";
2140 PRINT"[SP12][WHT]┐┌┬┬┐[SP15][GRN]┐├──[SP3]";
2150 PRINT"[SP11][ORNG]│┌┬┬┬┘[SP2][WHT]│└┘[SP9][GRN]│─┬─●[SP3]";
2160 PRINT"[SP10][ORNG]│┌┬┬┬┬┬┘▁┌┬┬┐[SP8][GRN]┐├──[SP3]";
2170 PRINT"[SP9][ORNG]▁┌┬┬┬┬┬┬┬┬┬┬┬┬┘[SP8][GRN]─[ORNG]┤[GRN]─[SP3]"
2180 PRINT"[SP8][ORNG]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┘[SP8][ORNG]♠[SP3]"
2190 PRINT"[YEL]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬[ORNG]♠[YEL]┌┬┬┬┬";
2200 PRINT"[YEL]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬[ORNG]♠[YEL]┌┬┬┬┬";
2210 PRINT"[YEL]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬[ORNG]♠[YEL]┌┬┬┬┬";
2220 PRINT"[YEL]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬[ORNG]│[YEL]┌┬┬┬┬";
2230 PRINT"[YEL]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬";
2240 PRINT"[YEL]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬";
2250 PRINT"[YEL]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬";
2260 PRINT"[YEL]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬";
2270 PRINT"[YEL]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬";
2280 PRINT"[YEL]┌┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬┬[HOM]"
2290 POKE2023,79:POKE56295,7
2300 RETURN
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C64 user wishes to swap software anywhere, disk only, send disks to Norm 42 Deakin Street, Bell Park, Geelong, Victoria, Australia 3215, all letters answered.

Wanted re-inking machine for Epson LX-86 cartridges, write John Roe, 22 Marriot Way, Morley, 6062 Western Australia.

Amiga owner looking for pen-pals for swapping tips, hints and programmes, don't hesitate, but write to Lars Sandness, Solheimvn, 10, N-9438, Breivika, Norway.

CBM MPS803 printer with word processing, database, spreadsheet all in perfect condition. £70 ono, contact Mr E Barker on 278 0333 ext 274.

DPS1101 printer tested but unused £95, also MPS801 with Datel ROM £65. Phone 0239 710545.

CBM 128 D/D 1570, monitor 1901, MPS 803 printer, mouse, light pen, two tape decks, two joysticks, loads of software £700, £700 ono. Phone 0304 366602.

For sale, C64 Datacassette, sound expander & keyboard, sampler, new power pack, freeze frame, loads of original games, lots of books and magazines. Contacty Andy (daytime) on Barnstaple 78594. Offers please.

C64 user wishes to swap programs and hints with anyone, everybody get answers, send disks or lists to Klell Hugo Borgersen, Trollveien, 316, N-1500 Moss, Norway.

C128 cassette approx £100, books £300, tapes, joysticks, manuals £200 ono. 0603 747365 after 5pm.

CBM 64 cassette recorder, mouse, joystick and many games, include Bruce Lee Kung Fu Master etc., also included educational programs 40 to 50 games worth £400 ono, £300 Phone 570 8719, all originals.

Commodore 1520 printer plotter wanted, call Gobind after 6.45 evening on 514 3643 or all day Sat & Sun, also selling disk tape copier £18.50.

For sale, CBM16 data recorder software, joystick £50 ono. Phone 021 788-0561.

Amiga owner wants to exchange games with people in Europe! I have over 200 titles, write to Paul Thorbjornsen, Tolia 25, 1453 Bjornemyr, Norway.

Wanted Public Domain software for C64 and C128 to PPS. Send list/info to Keikki Ikonen, Furuholtet 20, N-4550 Farsund, Norway.

Swap 64/128 games and progs all over the world. Disk only. All letters answered, send your latest stuff with list or disk to Ole Johnny Haugen, Jo Gjendesvei 5, N-2600 Lillehammer, Norway.

Amiga penpals wanted to swap programs, info tips, send list/disks to Pasi Lahtinen, Tavitie 5c, 01450, Vantaa, Finland or to Antti Hacklin, Vesaisen, Katu 10, 95400, Tornio. No lamers please!

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Amiga user wants to swap games, programs etc with users all around the world, send disks or list to H.K. Fjeld, Ospvne.5, 3340 Amot, Norway.

C64 1541 drive, plus new tape unit, action replay Mk3 backup board and software on tape and disk, disk boxes, notchers, etc, £230 ono. Phone 0495 247328.

A1081 high resolution Amiga monitor, £230, also Star LC-10 printer, new, with one years guarantee. Phone 01 552 3390 between 5pm and 11pm, Monday to Thursday.

C64 disk drive tape deck, joystick, printer, many manuals, over £300 software mostly boxed, £350. Call 40 Grovefields, Leegomery, Telford, Shrops. TF1 4YL.

C64 user wishes to swap programs with other 64 users. Please send list or games all letters answered, Steve Cairns, 52 Hatherleight Gardens, Bognor Regis, Sussex PO21 5HY.

Amiga owner wishes to swap games/programs, all letters answered. Hi to the Zombie and P-Tec. Torbjorn Norbye, 2500 Tynset, Norway.

1701 colour monitor (C64) £120, Star NL10 printer Commodore I/F with lead £150, both in vgc, carriage extra. Phone 073129 231 (Cambs).

Commodore 128 guaranteed till 7/6/89 with 1541, C2N, lots of software, disc box and mags, £300 ono. David 549 0360, Kingston, Surrey.

CBM128 monitor 1525 printer, £300 value software and books inc. 128 Superscript, Future Finance, Easyfile, CAD. Price £299. Phone 01 841 8098.

C64 user wants to swap disk games all over UK, I am especially interested in Flight Simulations, also wantedf, ZX80 or ZX81, write to Alex Wilkins, Bearwood College, Nelson House, Wokingham, Berks RV11 5BG.

Sound sampler £20, Trojan Cadmaster £10, Music Maker £10, Zork Trilogy, Easy Finance and Word Machine (all disk). £15 the lot (all for CBM64). Phone 0424 721463.

Amiga owner, wish to swap programmes. All letters answered. Write to Svavar Karsnes, Braut 80 Kopavogus 200, Iceland.

C64 software, 40 original disks, old and new, £4 each or £120 the lot, or swap for Visastar 64XL8 and £50. Phone John 021 743 3598.

Commodore 64C disk drive, cassette unit, Action Replay MK3, mouse, 2 joysticks, £500 original software, perfect condition, worth over £800, will sell for £425. 0538 752585 after 6pm.

Amiga Software Arcticfox, Skyfox, Instant Music, brand new, boxed £12 each or £30 the lot. First come first served, will post. Contact Tony Valentine, 200 Ashmore Road, London W9 3DE.

30 Commodore 64 computer games on disk, good condition, boxed only £3 each, first come first served, will post. Contact Tony Valentine, 200 Ashmore Road, London W9 3DE.

CBM Plus/4 includes Data Recorder, about £100 worth of original software, books and joystick £70 ono. Phone 0602 250234 or 63 Gresley Glascote Heath, Tamworth, Staffs. B77 2HN.

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Amiga users. We are two boys who wants to swap software. All letters answered, send to Henning Karlsen, 6090 Fosnavaag, Norway.

C128 1571 and 1541 disk drives, dataset, 40/80 column adapter stack RS232 interface, SuperScript CPM/56 system, many other games, manual, all vgc £450 ono. 01842 2435 evenings.

Commodore 64/128 Music software in. 5 octave keyboard & music expander sound sampler studio & mini keyboard, all midi compatible £125. Phone 01 366 6203, ask for Kirk.

C64 owner wishes to swap games all over the world (disk only). We got all the news, all letters will be answered. Send list to Svein Olav Heggernes, 5164 Hjelmaas, Norway.

Amiga user wants new swappers, must have very very latest stuff, no beginners, write to Alex, 40 Harhill Street, Govan, Glasgow, GS1 3NL. The quicker the better.

For sale C64, 1541 disk drive, tape recorder, mouse, 2 joysticks, disks, books, magazines and over £400 of software, all for only £250 ono. Phone 0924 475851.

Wanted Commodore disk drive for C64, anything under £100, please write to Graeme Burton, 23 Roddinghead Road, Whitecraigs, Glasgow 646 6TR.

Amiga user wishes to swap games, send disks or lists to Cosy, 8 Badger Drive, Woodhouse, Sheffield SI3 7TJ, all letters 100% answered.

Amiga owner wishes to swap hints, tips, info etc. Write to Jan Olsen, Aanesum 11, 8616 Baasmoen, Norway.

1701 colour monitor (C64) £120, Star NL10 printers, Commodore I/F with lead £150, both vgc, carriage extra. Phone 073129 231 (Cambs).

Plus/4 C16 games for sale inc. Ace 1, Ace 2, Mercenary, Anco's hits and many others, worth nearly £100, will sell all for £50 ono, excellent package for newcomers.

Amiga user wants to exchange info, tips, programs, etc, please write to Roy Magne Ristesund, Hamund, N-6065, Ulsteinvik, Norway.

Amiga owner wants to swap programs worldwide, write to Vidar Peturssen, Porufell 20 111 Reykjavik, Iceland, no Lamers please.

Commodore 128 light pens, disk crive, printer, CPM dataset, joystick, loads of games, blank discs etc. etc. An incredible unbelievable bargain at £350 ono. Phone 0329 231099.

C64 user wants to swap programmes on disks only, airmail your lists & disks to MA Tabassum, PO Box 6193, Riyadh 11442, Saudi Arabia.

Amiga/C64 owner wants to swap new disk stuff, all letters answered, 100% reply, all the latest stuff, send lists to 8 Blacksail Close, Wrensfield, Newtown, Stockton-on-Tees, Cleveland, TS19 0BG.

Original games and business software for C64, C16 and Plus/4, on disk or tape, mostly new, write for list, Job, 45 Blenheim Court, Hove, Sussex, BN3 4AJ.

C64 owner wants to swap software on disk, send disks to Justin Brooks, 106 Chukkos Road, Kenwyn, 7780 Cape Town, South Africa.

C63c new design CW Software tape or disc, 30 titles & data recorder, 2 months old, boxed with manual £150. Phone Slough (0753) 26755.

CBM Pet, dual disk drive, built in screen, with printer £80 ono the lot! 650 2808 (London).

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C64 users wish to swap games etc on disk, send list or disks to Karl and Paul, GPO, Box 2812, Canberra, ACT, Australia 2601.

C128 for sale. Software, books, C2N, Joyball, excellent condition £170 ono 0383 414398 evenings.

C64 and 128 user wants to swap software with other users all over the world, all letters answered, send disks or lists to, Oystein Buene, 2920 Leira, Norway.

I want to swap titles with other Amiga users, please send list or disks to Tommy Brodin, Vestlia 144 1453, Bjorneymyr, Norway. Phone 02 914991.

Amiga owner wants to swap programs and tips send disks/letters to, Anders Mikkelsen, Fritz Sybergsvej 16, 8290 Hojbjerg, Denmark.

Wanted Woodcraft for Vic 20, also wanted second hand cheap Amiga. Phone David Aherne on Brighton (0273) 694040.

Swap C64 progs and hints, disk only! Send list or disks to, Espen Ringom, Tunvegen 1b, N. 2600 Lillehammer, Norway.

Sale CBM 64C 1541 disk, printer plotter 1701 monitor, over £290 original tape/disk software, 100 blank disks plus more only £370. Apply Canvey Island 696999.

For sale C64 and disc drive plus £300 software, sell for £450. Phone 061 795 5415.

Amiga owner wants to swap latest games with anyone, especially in USA, write to Pari 84, Northam Road, Southampton SO2 0PB or call 0703 634696.

C64 user wishes to swap progs on disk only, send disk and lists to Costa Antoniou, 23 Ruthin Gardens, Cathays, Cardiff CF2 4AU. Wales.

C128/64 user wants to swap games (tape only) send tapes and list to A Warren, 4 Keyworth Place, Stradbrook, Sheffield S13 7GX.

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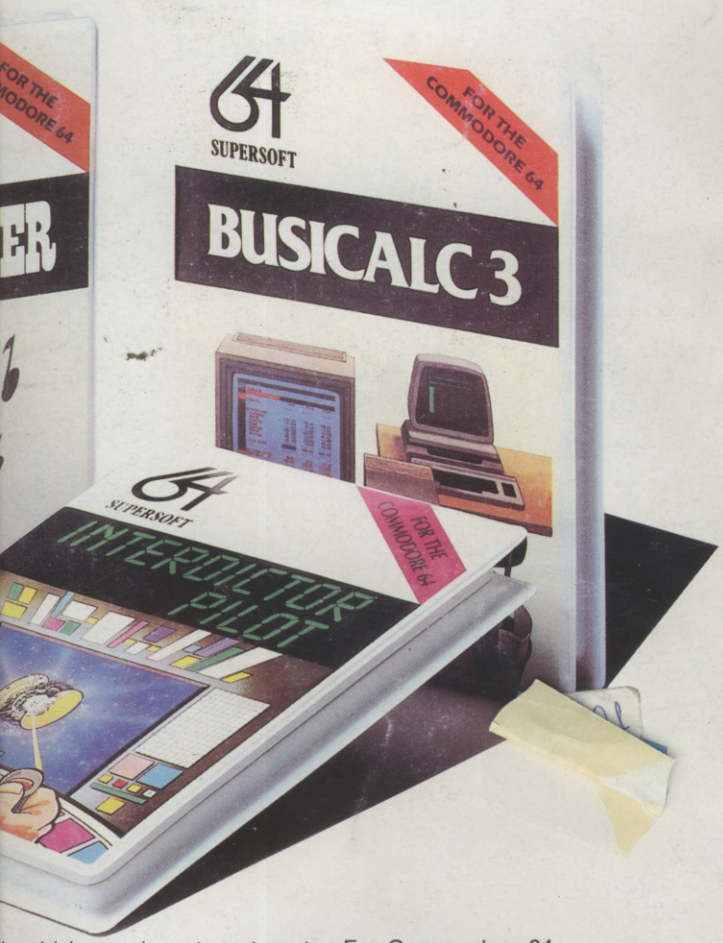

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